IT'S OFFICIAL: 3000 TOWER NOW AVAILABLE pg. 6

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For The Commodore AMIGA®
Volume 6 No. 10 October 1991
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AMIGA MAGIC

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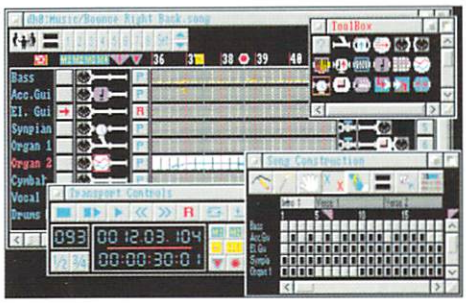

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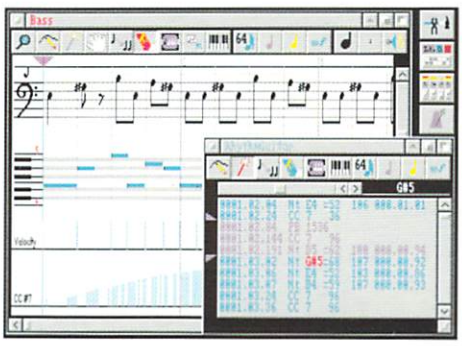

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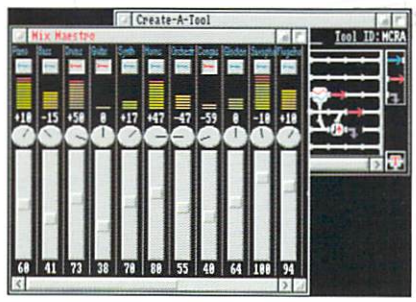

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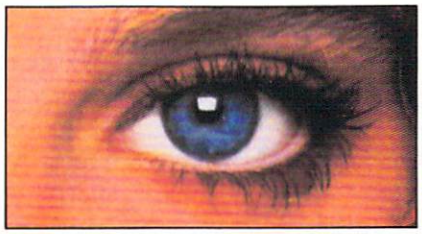

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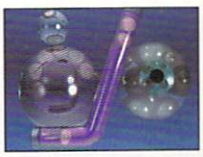

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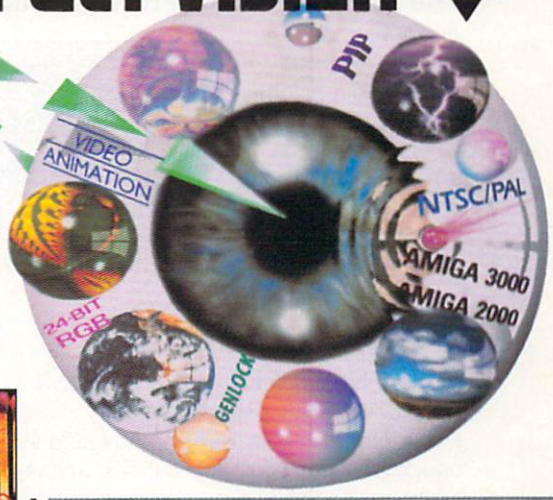
IMPACT VISION 24



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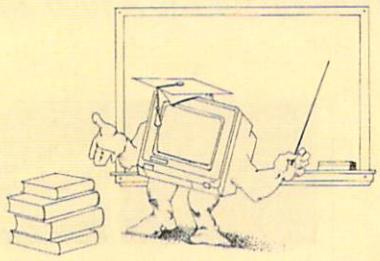

This being the fall season, with not only the winey aroma of apples in the air but also the familiar smell of pencil shavings in the classroom, we find it appropriate to include items of educational interest: a review of CLAS, a teacher authoring tool, p. 43; a review of Teacher's Toolkit, a teacher management tool, p. 34; and a review of three educational games in Diversions—CrossPoker, Dots II, and Idahan, p. 56. Plus more at the mortarboards.

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Cover by
Ernest P. Viveiros, Sr.

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Number 10
October 1991

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EDITORIAL CONTENT

Amiga Magic

What is Amiga Magic? For most Amigans it is turning the power on. Once they have done that, the Amiga is a wild carpet ride to almost anywhere you want to go. From the multimedia presentation platform of ShowMaker by Gold Disk to the artistic manipulations of ASDG's Art Department Professional, the Amiga offers a wide assortment of applications and excitement not available on other computer platforms.

However, real Amiga Magic comes when we can use the technology of the Amiga to improve all our lives. Since October is often considered Computer Education Month, we have included a healthy assortment of educational news and reviews. Yet, for those readers with a self-instructional point of view, we have maintained a hearty assortment of programming articles.

Perhaps the greatest magic of all is Commodore's recent announcement of the availability of the Amiga 3000 Tower. Commodore's delivery of a finished system actually matched the official release date. They had promised late August and they delivered their announcement on August 20. Units are available for developers through September, with units in most Amiga dealers' stores in October. In an industry that is often destroyed by missed deliveries, Commodore has produced on time.

The Amiga 3000 Tower Arrives

The day after Hurricane Bob had smashed his way through the heart of New England, August 20, in a small M.I.T. lecture hall, David Archambault, Commodore's Director of Business Markets, Jeff Scherb, Vice President of Commodore Applications and Technical Support Group, and David Haynie, Commodore's Senior Hardware Design Engineer, gave the first public presentation of Commodore U.S.A.'s Amiga 3000T. Instead of the normal gala event Commodore has been known to use in the past, this event was held by members of the Boston Computer Society's Amiga User Group

The Amiga 3000 Tower offers one very special feature missing in the original 3000—space. Standing just under desk height, the new Tower has a space for everything. The Tower supports two 3.5 inch drives, one 5.25 inch half-height drive mounted horizontally, as well as two 5.25 inch half-height drives mounted vertically. There is additional space for two 5.25 inch half-height hard drives installed behind the two vertical drives. Aside from an enormous potential for hard disks and floppies, the 3000T also includes a fast slot for a 68040 accelerator, a video slot for internal video devices, up to five Amiga/Zorro III slots, and four Bridgeport slots. The number of Amiga/Zorro III and Bridgeport slots available depends on how your peripherals are configured. Power lights, a key switch to lock out unwanted access, an internal speaker, and a high-resolution mouse with an extra long cord, mark this workstation Amiga.

The 3000 Tower is available in two formats. The standard configuration contains a 100MB (18ms) hard disk drive and 2MB of 32-bit RAM (internal memory may be expanded to 18MB of RAM on the motherboard) for $4,498. The second machine contains a 200MB hard disk drive and retails for $4,998.

Dave Archambault stated, "The A3000T represents the next wave of A3000 technology. It is a multimedia workstation that combines all the capabilities of the A3000 with an unprecedented level of expandability and power." In a press release, he was quoted as saying, "The A3000T is a power user's delight. It contains all the new features of the A3000, plus more room for expansion than the A2000 and A3000 combined."

The Ultimate User Group Meeting

Jeff Scherb provided BCS members with the news of several new developer tools and manuals from CATS, including the *AmigaUser Interface Style Guide*, the *Programmer's Guide to ARexx*, and a CD-ROM hypertext version of the *ROM Kernel Reference Manual*. The *AmigaUser Interface Style Guide* is in bookstores, and both guides are available through the CATS developer program.

The *Programmer's Guide to ARexx* describes proper coding methods and standards that a developer should use to include ARexx support in their applications.

The CD-ROM project, to be available through the CATS Developer program later this year, provides the *ROM Kernel Reference Manual* series in a hypertext format. Using the **AmigaGuide** hypertext engine developed by CATS (and also available to developers for inclusion in their own applications), the first edition of this CD-ROM will contain the contents of the *Includes and AutoDocs ROM Kernel Manual*. Developers can use this reference from within their favorite editor to search for documentation on the operating system function calls, and using cut and paste functions, can incorporate examples from the CD directly into their own code. The hypertext links on the CD-ROM will allow the developer to jump from the documentation of one function to the related function call or structure definition.

David Archambault and Dave Haynie of Commodore answer questions from Boston Computer Society Amiga users at the first public introduction of the Amiga 3000 Tower.

Although Mr. Scherb spoke first, I have mentioned him last because, while the A3000 Tower demonstrated Commodore's current status of hardware development, Jeff demonstrated CBM's commitment to better software tools for the future. Scherb hopes these and other tools soon to be available from CATS will speed the development of high quality applications for the Amiga.

In all, CBM brought one of the best combinations to any user group meeting. There were even a few surprises in the question-and-answer session when Dave Haynie promised 2.0 ROM chips to be available by October 1 and the final disk version to be shipped to dealers that day.

My special thanks go to the two magicians who directed me to the meeting: Editor Mary Ryan of *Amiga Culture*, the official newsletter of the Amiga users in the Boston Computer Society, and her husband and strong Amiga supporter, Pat Ryan.

Sincerely,

Don Hicks
Managing Editor

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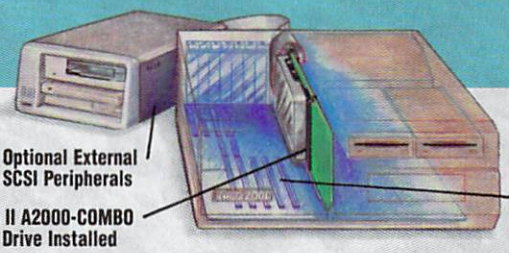

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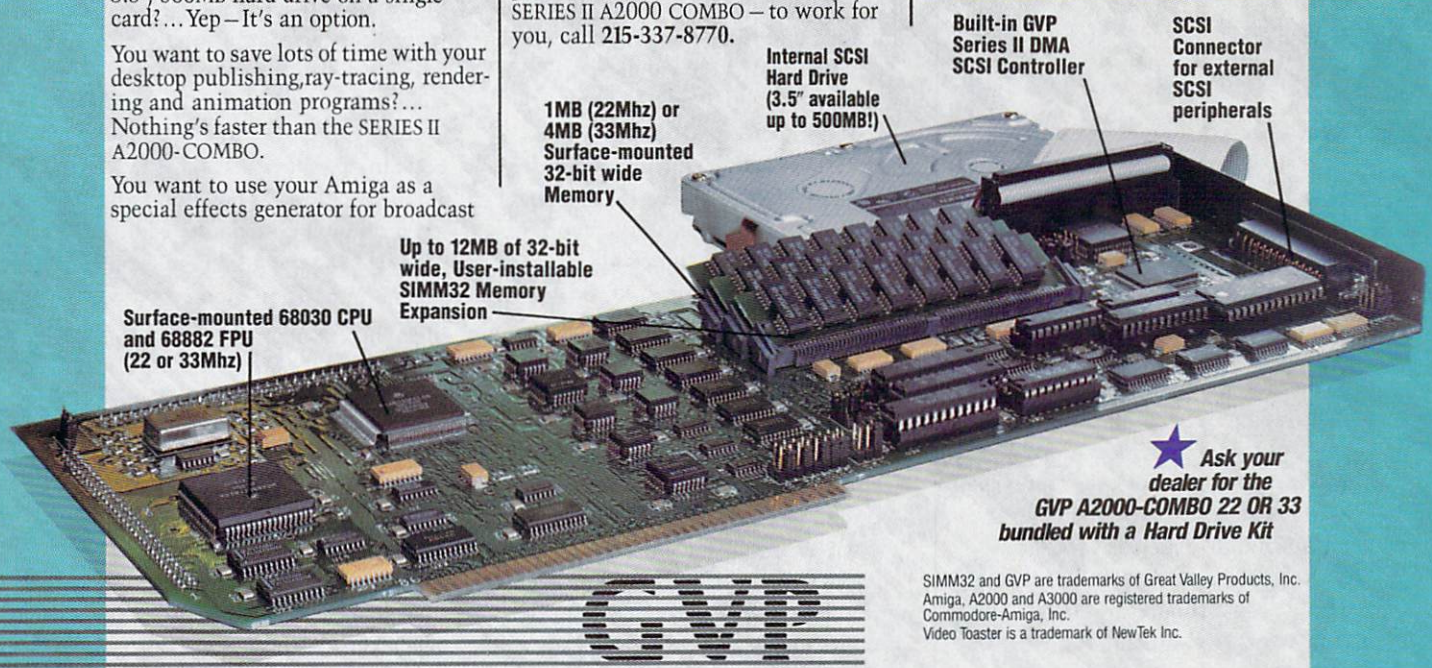

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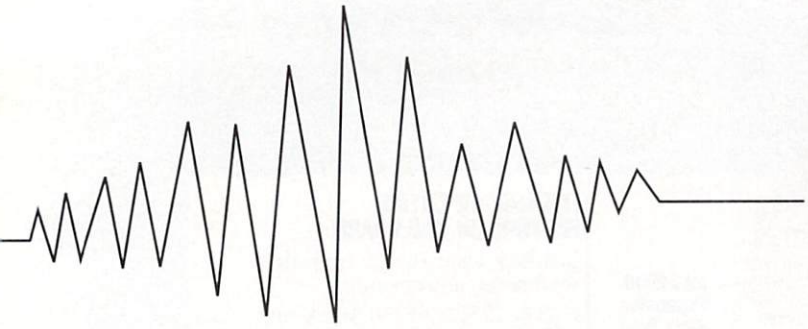


Feedback

Firecracker Board

I have a question pertaining to the review of the Firecracker board by Impulse, Inc. in the July 1991 issue. I was wondering what RGB monitor the author was using? I understand that there are several grades of RGB monitors available. I was wondering if one can expect different results from different monitors or if the product has consistent results on all monitors?

Sincerely,

Gregg Kodra
Austin, TX

Dear Gregg,

The Firecracker 24-bit graphics board requires an Analog RGB monitor with a horizontal sync frequency of at least 15.75 KHz and a vertical sync frequency of 60 Hz. The Commodore 1080/1084 and most digital/analog RGB monitors adhere to these frequencies or surpass them. Although most monitors are set up for standard digital RGB input, some treat analog differently. A number of hi-end video monitors claim "RGB pass-through" (such as some Sony PVM series monitors), but beware. These pass-throughs are 3 BNC connectors (red-green-blue) with a separate sync so do check out the spec sheets before buying.

The monitor I used for the review was a Commodore 1080, originally produced for the Amiga 1000. As we know this takes the red, green, blue, and sync signals through one connector. There are several grades of monitors but don't be mislead by such features as aperture grille pitch (dot pitch) on the video side; rather check the horizontal and vertical dot resolution of the RGB display. A monitor with a horizontal video resolution of 450 lines may have a RGB resolution of 640 horizontal lines. It's a safe bet that the higher the video resolution, the higher the analog RGB resolution. The ideal choice would be to purchase an RGB monitor that has a resolution meeting or exceeding the Firecracker's resolution (keep in mind that most spec sheets on analog monitor resolutions do not calculate overscan variables.) However the Firecracker board itself produces a solid crisp RGB output and will provide excellent results on most RGB monitors.

As for recommendations, I would say any of the Commodore monitors would be a great choice. They are low-priced, long-lasting (mine's going on six years), and you won't have to go through any incompatibility problems, since most companies producing Amiga hi-color graphics boards use the Commodore monitors for product development and testing.

Frank McMahon
AC Video Consultant

ATonce Emulator

I would like to point out a serious omission in your review of the ATonce PC/AT emulator in the July 1991 issue of your magazine. As exciting as the prospect is of adding IBM compatibility cheaply and easily to the Amiga, there is what I find to be a serious drawback—the emulator's incompatibility with downlevel motherboards.

According to the installation guide that comes with the emulator, "some Amiga 2000 computers have problems with their slots—especially when they have a motherboard with a revision number smaller than 6.2." I have recently purchased an emulator for my Amiga 2000 and have failed to get it to operate at all on my system. I am now looking at having to upgrade my motherboard from revision 4.3 to 6.2. I believe a requirement for a particular revision motherboard should be noted in product advertisements and reviews.
Sincerely,

Mike Yetter
San Jose, CA

Commodore Complaint

As a longtime Commodore software developer—since 1979—we have always been impressed by the superiority of Commodore's technology. The mystery is why Commodore does such a second-rate job of marketing its superlative hardware.

If you have an idea...

YOU NEED SCALA

A Professional Titling & Presentation Package for the Amiga

GVP Professional SOFTWARE Series

How you present your ideas is as important as the idea itself. With a tool like SCALA your ideas will have the advantage they deserve.

NEW! V1.1 Now Shipping

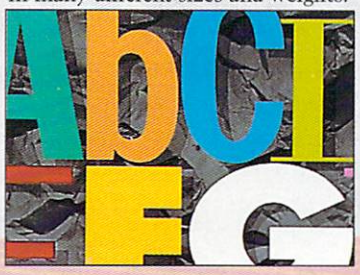
SCALA provides all the tools you need for professional presentations:

Backgrounds. Scala includes FIFTY-NINE professionally created backdrop images and textures, such as "Stone", "Marble", "Fabric", etc. THIRTY-NINE specially selected color palettes are included, allowing you to create unique and eye-catching background tapestries, adding character to your presentations. Backgrounds are stored

in IFF picture format (HAM also supported), allowing custom backgrounds to be easily created and added.

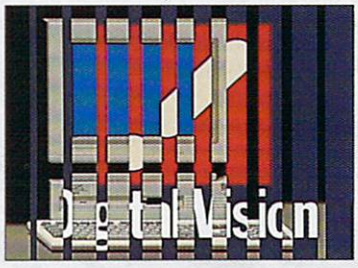
Symbols. Scala includes many useful presentation symbols such as, male, female, arrows, vehicles, etc. Symbols are stored as IFF brushes, allowing custom symbols (or other objects) to be easily created and added.

Typography. Scala includes SEVEN-TEEN fonts, each of which is available in many different sizes and weights.



Special effects such as tilting, underline, drop shadow, 3D and color can be applied to any individual letter, word or line. The video enthusiast will find several typefaces especially suitable for video titling purposes.

Transitions. Scala offers more than SEVENTY special effects transitions for control of transitions between pages of a presentation and how and when text, symbols or objects appear on a page. These transitions allow you to soften or accentuate changes and liven up your presentations. The speed of any transition and display times can be fully controlled.



Animations. Scala is able to load and play back animations at any point within a presentation. Text can be added and super-imposed on an animation while it is being played back.

Output. Transferring output to different media is no problem with a duo like Scala and the Amiga. Using well-known Amiga tools, presentations can be genlocked, recorded on video tape, printed on polaroids, etc. Scala includes ScalaPrint which can print out a complete presentation or just a cue for your speech. PostScript printers are supported.

Other Features. Page layout and attributes can be saved and re-used later to ensure a consistent appearance within a presentation. ASCII files can be loaded and formatted onto these pre-defined layouts. Any object or part of a screen can be defined as a "button", allowing "run-time" selectable flow of presentations by the simple click of a mouse button. Mouse buttons act as a "remote control", allowing forward and backward control of the presentation or overriding display times.

SCALA, *Sophisticated yet Easy-to-use*

Scala represents a new generation in Amiga software due to its excellent user-interface and smooth performance. All Scala's features are accessible through three, clear and easy-to-use menus labeled in plain English. Scala is shipped with a comprehensive manual and EIGHT DISKS! MINIMUM CONFIGURATION. Scala requires Kickstart V1.3 (or later), at least 1MB of memory and a hard disk. Separate versions for PAL and NTSC.

NEW! V1.1 Now Shipping

SCALA V1.1 now includes full video-titling and multi-media features! New features include:

- ★ Realtime anti-aliasing (smoothing) of text, brushes and color fonts.
- ★ Continuous, smooth scrolling titles for film credits, etc.
- ★ AREXX support.
- ★ Many other new features.

Call for free upgrade from V1.0 or latest DEMO disk.

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1) I was reminded of this puzzlement awhile ago when, after some persistent invitations from Commodore, I went out to West Chester to hear and agree to some innovative marketing plans involving our educational software. Immediately upon my return to home base in Minneapolis, I wrote a number of follow-up letters to Commodore concerning what we had agreed upon. No response. Nothing. It was as if Commodore had never heard of us.

2) At an earlier point in time, I lined up a potential opportunity for Commodore to get some national publicity for the instructional effectiveness of the Amiga within an inner-city school setting. In turning down my proposal, a Commodore spokesman made this statement that should be framed and hung on a wall somewhere: "We do not," said the Commodore spokesman, "solicit opportunities!"

I conclude with this appropriate gem from an actual court case:

Defense Counsel (to a witness in a shooting incident):
"You too were shot in the fracas?"

Witness: "No, sir. I was shot midway between the fracas and the navel."

In the case of Commodore, it's directly in the fracas.

Sincerely,

Thorwald Esbensen
President, MicroEd

New Zealand Fan

Our family has owned our Amiga 500 for about 6 months. This is the first and only computer we have used, and we are very happy with it. It is a standard 500, with no extra memory or disk drive. We have been reading your magazine ever since we got the Amiga, and find it interesting. Our problem is that all magazines, including yours are too technical for us to understand, as we are just plain old KIWI's. Most of the operations of the software and the computer we have found out by ourselves as we live to far away from any Club, or Commodore Agents. There must be thousands of people like ourselves that are just beginners and would like some articles especially for this group of people.

When we first got our Amiga we got hold of some old "Compute" books and typed some of the programs to be just for the standard Amiga, not requiring anything apart from what packaged in the box. Before we buy these things such as assemblers, modems, extra memory, drives etc. We would like to know how to properly use what we've got. We do enjoy reading your magazine even though we don't understand alot of it.

Yours Sincerely,

L. Kearvell
New Zealand

Dear Mr. Kearvell:

Your point is well-taken. We sometimes become overwhelmed by all the high-end stuff coming our way. However, available as a back issue, Amazing Computing v5.12 features articles for the beginner. As always we'll strive to keep users of all levels in mind.—Ed.

Technical Readers

After some very prejudicial and negative statements about the Amiga, Jeff Holtzman, computer columnist for Radio-Electronics magazine, has recently made a very courageous change in his stand. In his August column, he describes the origins of his prejudice, and asks the Amiga community to help enlighten him and R-E readers.

Radio-Electronics is a very prominent magazine in the realm of electronics, and reaches a readership that is very technologically minded and open to new and better technologies. I think the Amiga would be well received by these people if they could get accurate information about it.

Holtzman called on the Amiga community to write articles and submit info on new products for R-E to print. I have written for their writer's guidlines, and sent some info on Amiga products.

This is a golden opportunity for Amiga users and manufacturers to approach a large group of technical people who have just recently been exposed to the "joys" of Windows for the PC. The Amiga should blow them away.

Come on, Amiga users, Radio-Electronics is open to, and asking for, solid information on Amiga applications and capabilities. Let's show them just how powerful the Amiga is. We have a new forum for telling our side of the story, so let's use it.

Radio-Electronics
500-B Bi-County Blvd
Farmingdale, NY 11735

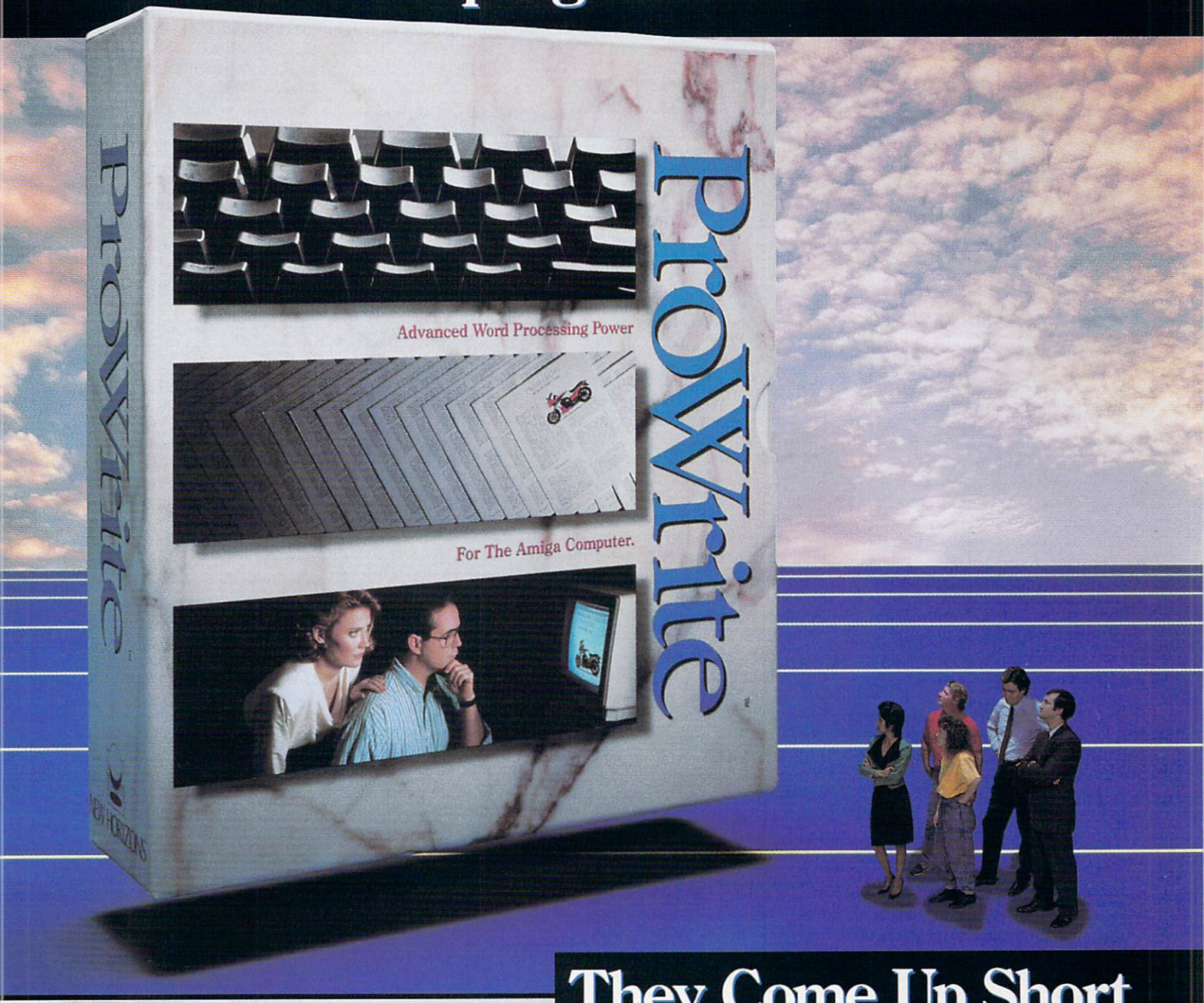
Jonathan Norris
La Grande, OR

All letters are subject to editing. Questions or comments should be sent to:

Amazing Computing P.O. Box 869
Fall River, MA 02722-0869
Attn: Feedback

Readers whose letters are published will receive five public domain disks free of chard.

How Does The Competition Measure Up Against ProWrite?



They Come Up Short.

ProWrite®. Performance That Stands Out In A Crowd.

In this highly competitive world, there is always a leader. An innovator. The one that the competition looks up to. In the world of Amiga word processors, ProWrite is that leader.

ProWrite has the high performance features you need. A 100,000 word spelling checker that can check as you type. A thesaurus with over 300,000 cross references. Multiple columns with both snaking and parallel text flow. Multiple fonts and graphics. Powerful macros. Exceptional speed.

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Circle 118 on Reader Service card.

new products
& other neat stuff

edited by Timothy Duarte

• Software •

Anti A

Anti A is a font enhancement utility which performs an anti-aliasing process on normal Amiga fonts. From one original font size, it is possible to produce up to 9 scaled-down versions (from 1/2 down to 1/12 size), anti-aliased using four bright-ness levels. The new fonts are stored in ColorFont format and can be used by any paint or video program which supports ColorFonts. Although they can be displayed in any non-HAM screen mode, they look most effective when used on a hi-res interlaced screen. Anti A runs on all Amigas under v 1.3 or v 2.0. *Suggested retail price: unavailable, Zen Computer Services, 2 Silver Birch Grove, Swinton, Manchester, M27 1FS, Inquiry #202*

Audio Gallery

With its combined video, audio, graphics and computer interactivity, Audio Gallery, the talking picture dictionary, is the modern way to help you learn a foreign language. It can also be beneficial to students in grammar school through the university level. Audio Gallery provides simultaneous audio and visual reinforcement of actual subjects in the foreign language. Features include on-line English/foreign language and foreign language/English dictionaries, a comprehensive language manual, complete with grammar, concise pronunciation guide, tips for the traveler, and a history of the language. Audio Gallery also provides multiple choice quizzes for step-by-step verification of the material covered. Full color graphics and digitized voices of native speakers make learning a language fun. Spanish, German, Chinese, and Japanese language versions are available. *Suggested retail price: European languages: $89.95, Oriental languages: $129.95, FairBrothers, Inc., 5054 S. 22nd St., Arlington, VA 22206, (703) 820-1954, Inquiry #203*

Bill Elliot's NASCAR Challenge

Choose from six official banked NASCAR tracks of Daytona, Talladega, Bristol, Darlington, Michigan, and Atlanta. Or choose from the two twisting road courses of Sears Point or Watkins Glen. Prepare to race using track condition information to adapt your stock car by adjusting engine type, tire stagger, spoiler angle, and gear ratio. Players can review their driving skills with a VCR-style instant replay mode which allows players to record their action, crashes and all, from six different camera angles and play it back. Authentic racing features include a dash board with damage warning, light, tach, fuel, oil, and temperature gauges. A leader board shows your best and current lap times, number of laps raced, your position, and your distance behind the leader. *Suggested Retail Price: $49.95, Konami Inc., 900 Deerfield Parkway, Buffalo Grove, IL 60089, (708) 215-5111, Inquiry #204*

Caligari Broadcast 2.0

Design and animate with the finest user interface! Caligari interacts with objects, not with menus or a keyboard! It also allows a user to work in realtime and design in perspective 3-D space which resembles the real physical world.

The software includes powerful new capabilities such as single point editing, mirroring, slicing and sweeping operator functions, and interactive spline-based animation features. Caligari produces photorealistic images and animations with texture mapping, environment mapping, shadows, and anti-aliasing using 16.7 million colors on video resolution or up to 8000 x 8000 pixels for slide output. Optional drivers are available for various framebuffers. *Suggested Retail price: $299.00, Octree Software, 311 W 43 St., Suite 904, New York, NY 10036, (212) 262-3116, Inquiry #205*

Canvas

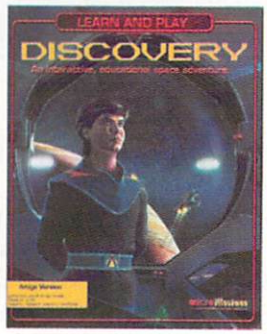
This is the first in a series of full-screen art by Warner Bros. artist/animator Ryan Roberts. The three-disk package includes 13 classically-styled animations and five pictures which feature animal and fantasy characters. *Suggested Retail Price: $34.95, INOVAtronics Inc., 8499 Greenville Ave., Suite 209B, Dallas, TX 75231 (214) 340-4991, Inquiry #206*

Death Knights of Krynn

Death Knights of Krynn, the sequel to S.S.I.'s Champions of Kyrnn, begins a year after the conclusion of Champions of Krynn. A party is taking place commemorating the victory over the evil forces when the celebration is disrupted by the undead Sir Karl, swooping in on a Death Dragon. When Sir Karl steals a Dragonlance, the champions decide to find Sir Karl and recover it. As they travel, their goal and adventure prove to be much different than ever imagined. Characters may be transferred from Champions of Krynn or an entire new party may be created. *Suggested Retail Price: $49.95, Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (800) 245-4525, Inquiry #207*

Discovery 2.0

Discovery, the award-winning educational program, has now become even better. Designed for children in K-12, Discovery teaches the concept of carrying and borrowing numbers in addition and subtraction problems and offers fill-in-the-blank questions for addition, subtraction. Answers can be typed or set up in a multiple choice format. Learners will take part in an interactive, educational space adventure which includes Spelling and Math lessons. Your job is to fix broken-down starships in the vastness of space. Use knowledge and intelligence to solve the puzzling problems posed by the ship's security computer. Features include new graphics, music, animation, and enhanced gameplay. Works on all Amigas with 512K memory. Additional expansion lesson disks are also available. *Suggested retail price: $69.95, Microillusions, P.O. Box 3475, Granada Hills, CA 91394, (818) 785-7345, Inquiry#208*



DLG Professional

After two and a half years of design, TelePro Technologies an-

nounced the release of DLG Professional, a unique telecommunications product for the high-end hobbyist. The concept behind DLG is a group of interrelated modules and commands that form the nucleus of a bulletin-board operating system that is built around a standard Amiga shell.

Some of the highlights include multi-line capability, conferencing, Usenet, FidoNet electronic mail and echo-mail compatibility, message broadcasting, message tagging, message bundling, message downloading, off-line reading, sysop-configurable file transfer protocols, and more. With dozens of third party utilities and commands available, DLG is guaranteed to keep growing with the rapidly changing pace of telecommunications. *Suggested Retail Price: $199.00, TelePro Technologies, 20-1524 Rayner Ave., Saskatoon, SAS, Canada, S7N 1Y1, (306) 665-3811, Inquiry #209*

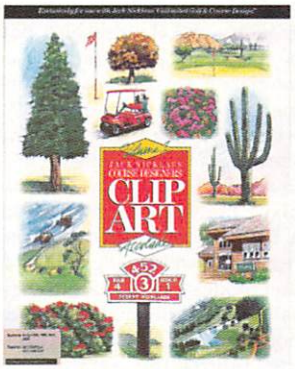
Draw 4D-Pro

This multi-dimensional modeling and animation software is designed for use in both desktop video and desktop publishing. The program has the same features as Draw 4D and many new ones, too. Features include IFF bitmap wrapping, Gouraud value and/or color interpolative shading, a new animation multi-level deform mode, an easy-to-use eye path for architectural walkthroughs, compressed 24-bit IFF saves, super-fast render times, and many enhanced tools. *Suggested retail price: $349.00, Adspec Programming, P.O. Box 13, Salem, OH 44460, (216) 337-3325, Inquiry #210*

HAM-E Workshop

Holosoft Technologies has released Ham-E Workshop, a 256 color REG-mode paint program, with extensive animation capabilities, designed especially for use with the Ham-E video device.

Ham-E workshop has over 200 fast, easy-to-use features, including CELL and PAGE animation. New Brush features such as color filtration, stuffing, rippling, rolling, image transferring, and a powerful drape feature allow you to drape any brush over an object. A comprehensive tutorial walks you through each feature, step by step. *Suggested Retail Price: $50.00, Holosoft Technologies, 1637 E. Valley Parkway, Suite 172, Escondido, CA 92027, (619) 747-0663, Inquiry #211*



Jack Nicklaus' Course Designers Clip Art

Golf fans who have to this point enjoyed designing their own masterpiece courses with Jack Nicklaus' Unlimited Golf & Course Design can now create even more detailed and visually stunning courses with Accolade's Jack Nicklaus' Course Designers Clip Art: Volume 1. More than seven finished course objects, three new land plots, and nine new scenic backgrounds for creating beautiful and challenging courses applicable to any climate are included. A bonus 18-hole championship course, Desert Highlands Golf Club in Arizona, has been added to the collection as well.

A wide collection of finished objects, such as trees, cacti, rocks, animals, golf carts, clubhouses, fountains, and even a ball washer, helps course architects add the perfect finishing touches to their designs. *Suggested Retail Price: $24.95, Accolade, 550 S. Winchester Boulevard, San Jose, CA 95128. (408) 985-1700, Inquiry #212*

Lunar Construction Set

Lunar Construction Set (LCS), also by Ryan Roberts, is a two-disk set of clip art and background components for creating custom-made lunar and space scenes. LCS includes several brush anims, as well as several full screen anims and pics which stand as examples of the usage of these components. Informative screens depict how asteroids, mountains, and craters are drawn, step-by-step. A total 183 clips, 24 pics (some in HAM mode) and 10 anims appear in this package. *Suggested retail price: $24.95, INOVAtronics Inc., 8499 Greenville Ave., Suite 209B, Dallas, TX 75231 (214) 340-4991, Inquiry #213*

Magic Mirror

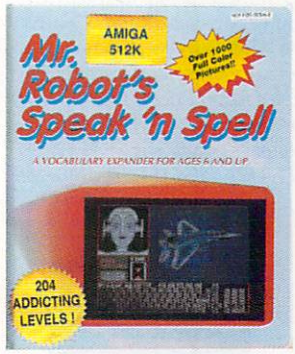
In simple step-by-step tutorials, strategies and ideas are presented that you can use immediately in your daily life. The Magic Mirror has a database which keeps track of your progress and records your beliefs, roles, anchors, and modalities. Use many powerful techniques found in the program to help you create a better understanding of the many forces effecting your life. *Suggested retail price: $39.95, Blue Valley Software, 29 Shepard Street, Walton, NY 13856, (800) 545-6172, Inquiry #214*

MIoutline

Mirror Image Productions released a sister program to its popular MIfont PostScript conversion software for use with Professional Page. MIoutline will convert any PostScript Type 1 printer font, from the IBM or Macintosh, into a fully compatible Professional Draw outline font. The fonts actual letterforms may then be manipulated with any of PDraw's drawing tools to create effects, specialty type and logos. All font characters to a maximum of 224 are accessible from PDraw complete with kerning. As with MIfont, all standard characters are rearranged to Amiga order. MIoutline will also generate printed PostScript charts showing any font's complete character set and the key combinations to call them. *Suggested Retail Price: $124.95, Mirror Image Productions, 30 Aurora Court, Suite 1209, Scarborough, Ontario, Canada, M1W 2M3, (416) 495-7469, Inquiry #215*

Mr. Robot's Speak 'N Spell

Mr. Robot is a talking computer vocabulary wizard who can rapidly expand your word power by using superb graphics, animation, music, and speech. Over 1000 vivid color pictures and 204 different levels are used to greatly increase memory retention as compared with traditional learning environments. In addition, crossword puzzle games are included to reinforce spelling skills. Intended for players at the age of six and up, the user can choose between a male or female robot tutor. *Suggested retail price: $49.95, Brain Technologies, P.O. Box 215147, Sacramento, CA 95821, (800) 272-4601, Inquiry #216*



Paint me a Story

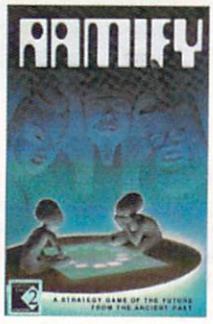
Designed to encourage children to create picture-based stories, Genisoft's Paint Me a Story has just been released. Draw your own characters or use the ready-made figures and backgrounds. You don't have to be an artist to create the most amazing and colorful pictures. Add text and choose different color patterns to paint with. String pictures together with different magic fades and wipes between each picture and add background music for a finishing touch. A player disk allows you to give your story disks to your friends. *Suggested retail price: unavailable, Genisoft, Unit 3, Poyle 14, Newlands Drive, Colnbrook, Berks SL3 ODX, U.K., Inquiry #217*

Pyscho Killer CDTV

It's a cold fall evening. Around the blind corner in the middle of the country a car lies skewed across the road. You skid to a halt and get out to see if there has been

new products
& other neat stuff

an accident. There is no one. Suddenly from the distance you hear a desperate scream. You turn and head towards the sound of distress. You are alone...almost!
Psycho Killer is designed to be an interactive CDTV experience. Shot on location, it uses photographic images and real actors. Sound is sampled and the images are digitized for total reality. The plot and game are interwoven. As the hero, it's up to you to overcome the psycho killer. Confront the killer, survive, rescue the potential victim, and escape! *Suggested Retail Price: $49.95, On-line Entertainment, 642A Lea Bridge Rd., Leyton, London, England E10 6AP, 011-4481-558-6114, Inquiry #218*



Ramify

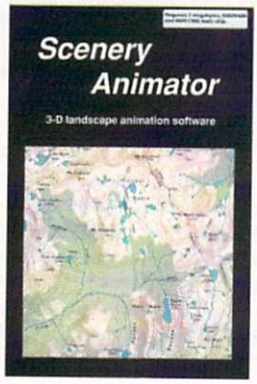
Thousands of years ago, in many ancient lands, royalty and common men alike played games consisting of pits and pebbles or jewels as playing pieces. Sometimes, the games were played for high stakes, including rubies, sapphires, and slaves. Ramify is based on the ancient Mancala strategy games. You will find it as addictive as the kings and maharajahs of old found it, and we have modernized it for your computer. In this version, you are playing for megabytes of RAM chips. *Suggested retail price: $39.95, Expert Services, 5912 Centennial Circle, Florence, KY 41042, (606) 371-9690, Inquiry #219*

REAL3D v. 1.4

REAL3D has been fully updated to meet the demanding requirements of professional users. Four curve creation functions, six free form creation tools, 8 free form manipulation functions, 24 different bending functions, five functions for point selection, and a smooth option with Phong shading are some of the new free-form modeling and point-editing features in this version. All together, there are more than 65 new functions. *Suggested Retail Price: unavailable, Activa International, P.O. Box 2360, 1100 DT Amsterdam Zuidoost, The Netherlands, (31) (0) 20-91-1914, Inquiry #220*

Scala 1.1

Great Valley Products released the first upgrade for Scala, the professional presentation software package. All original attributes of the original Scala are included, as well as several enhancements which make Scala even more versatile. Some of these features include continuous credit scrolling, Arexx and Colorfont support, full support for outline fonts and new function keys. In addition, Scala 1.1. has a new realtime anti-aliasing technique which allows the user to simulate higher resolution on the screen automatically. Also new in version 1.1 is the superimpose transition, which takes two pictures and blends them together much like a video mixer does in a fade transition between two video sources. A free update disk is available to registered owners of the first release. *Suggested Retail Price: $395.00, Great Valley Products, 600 Clark Ave., King Of Prussia, PA 19406, (215) 337-8770, Inquiry #221*



Scenery Animator

Natural Graphics has released Scenery Animator, a powerful 3-D program that creates 24-bit single frames or fly through animations of both real world and imaginary fractal landscapes. Scenery Animator creates landscape pictures with lakes, oceans, greenery, and clouds which may be animated. An intuitive user interface makes camera positioning and picture composition easy, with the preview window always showing the current camera view. In addition, the software can display a preview of animation like a flight simulator and includes real world DEMs (Digital Elevation Models) from U.S. Geological survey at the highest resolution possible.Landscapes covering interesting sections of Yosemite, Grand Canyon, Lake Tahoe, High Sierra are also included. Scenery Animator has a built-in keyframe editor which allows creation of straight or 3-D spline curve flight paths, and an unlimited number of frames per animation to simulate time-lapse photography. The program renders in all Amiga screen resolutions and requires a 68020/030 CPU, a 68881/882 math chip, and 2MB of memory. *Suggested retail price: $99.95, Natural Graphics, P.O. Box 1963, Rocklin, CA 95677, (916) 624-1436, Inquiry #222*

Secretary

As the name suggests, Secretary does a lot more than file phone numbers and addresses. It provides an integrated set of time and information functions that let you organize your schedule and important data. Starting with a month-at-a-glance calendar, you can make schedule, to-do, and reminder entries through the year 2055. Entries are shown in the calendar so you can see at a glance when you have openings in your schedule. For those on the go, a weekly schedule can be printed for any week. The program also allows you to do partial string searches on calendar entries, resulting in the ability to extract both history and future plans for a particular reference. Search results can be printed out to generate a hard copy record.
Secretary also provides a full-featured name, address, and phone number filing system. Up to five phone numbers and two addresses can be entered for each individual. The phone list can be printed with or without address and sorted by name or company. An included configuration program allows you to customize mailing labels, default sort and select criteria, and memory usage parameters. A 60-page reference manual is supplied. Any Amiga printer is supported. *Suggested retail price: $49.95, Expert Services, 5912 Centennial Circle, Florence, KY 41042, (606) 371-9690, Inquiry #223*

Secret of the Silver Blades

Explore the most sophisticated Advanced Dungeon & Dragons fantasy role-playing games which includes mines, dungeons, ruins, and ice castles. The player will battle monsters never before encountered, such as gargoyles, cloud giants, hydras, and other fierce foes. With the use of high character levels, the user can invoke many other new powerful spells like barkskin, charm person, delayed blast, and fireball. *Suggested Retail Price: $49.95, Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (800) 245-4525, Inquiry #224*

Street Rod 2

Car savvy, driving skill, and race winnings take you from high school senior to King of the Road. Street Rod 2, developed by California Dreams, is the expanded construction set and racing game for everyone who's ever wanted to pilot a real muscle machine. This advanced driving simulator for the Amiga blends stunning bit-mapped and vector graphics to heighten the racing experience. Players start out with stock equipment and buy up, trading and adding parts as their bank

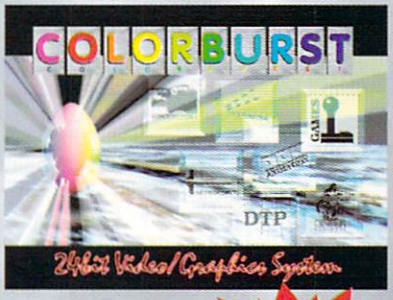
Expect the Unexpected

COLORBURST

Making the 16 Million Color Amiga a Reality.

The ONLY True 24-Bit Graphics Solution for All Amigas/All Monitors

- 16.8 Million Colors
- Pure, Broadcast Quality RGB Output
- Realtime Image Processing
- Includes 24-Bit Paint Program
- Connects thru Monitor Port to All Amigas
- Compatible with all Amiga Monitors
- High Resolution 768 x 480 pixels (580 PAL)
- Includes 1.5 MB display RAM
- Realtime Horizontal and Vertical Scrolling
- Complex Color Cycling and Video Effects
- All at an Affordable Price



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"If you are a lover of Amiga generated music, a dabbler in acoustics, an audio scientist, a musical hack, a MIDI enthusiast, an Amiga visual artist, a just-for-fun kind of person, an adult, a kid, or a seasoned professional musician, buy this program now. If you are none of the above - buy it anyway." —R. Shams Mortier, AMAZING COMPUTING MAGAZINE

DCTV: A Guided Tour

This easy-to-follow, comprehensive VHS tutorial will teach you everything you need to know about DCTV!

Topics include:

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Personal Write is an extremely fast word processor which is packed with unique capabilities. It features a rich set of powerful commands which allow you to read, edit, store, convert, compress, encrypt and print text. 80 menus and hundreds of gadgets let you tailor the program to fit every need, while the default settings let the inexperienced user start working with the program right away.

Personal Fonts Maker

New easy-to-use font creation utility

Personal Fonts Maker is an excellent, comprehensive tool for designing and processing both printer and screen fonts. Standard Amiga fonts and fonts created with Personal Fonts Maker can be transferred to a printer's memory and printed at maximum quality and speed. No other program offers you the complete control over printed fonts which you will experience with this program.

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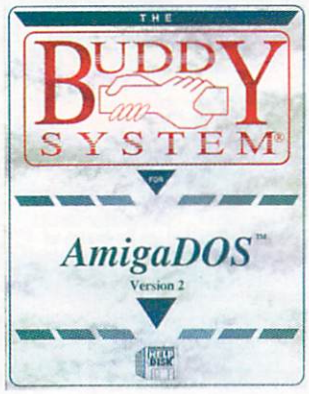


The Buddy System for AmigaDOS V. 2

The Buddy System for AmigaDOS is your personal guide through the fundamentals and features of the Amiga and its operating system. Increase your productivity with an on-line help system that gives you the information that you want and need to know! Features include a point and click interface, a real-time, visual demonstrations with an exclusive AniMouse instructor, speech narration and captioning, a complete source of reference, and much more. The Buddy System requires 1MB of memory and two floppy drives or a hard drive. *Suggested retail price: $49.95, HelpDisk, 6671 W. Indiantown Rd., Ste. 56-360, Jupiter, FL 33458, (407) 694-1756, Inquiry #226*

Trivial Pursuit CDTV

Trivial Pursuit comes to life with full color digitized pictures, superb animated graphics, stereo music, and sound effects which accompany 2,000 of the most trivial and irrelevant questions. The questions are spoken by celebrities and amazing photographs accompany each question. Pure fun and enjoyment for all ages. *Suggested Retail Price: unavailable, Domark, Ferry House, 51-57 Lacy Rd., Putney, London, England SW15 1PR, 011-4481-780-2222, Inquiry #227*

TV Objects

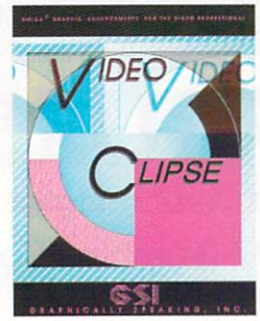
TV Objects is a two-disk set of 3-D object files which can be used in popular Amiga ray tracing programs. TV Objects come in two formats: Sculpt 3D/4D and TurboSilver/Imagine, both in the same package. 3D objects are grouped in geometric objects, arrays, and spirals. No such objects like these are currently available on the market. Styles include ripple balls, rib-torus, gears, spiral columns, and many other geometric forms. Objects can be used for creating hyper-realistic ray tracings, station IDs, video backdrops, science fiction illustrations, and many other options. TV Objects requires 1MB of memory and 3-D graphics software mentioned above. *Suggested Retail Price: $49.95, Slide City, 6474 Highway 11, Deleon Springs, FL 32130, (904) 985-1103, Inquiry #228*

Video Clipse, Volume 1

No more wimpy fonts! Graphically Speaking, Inc. introduced Video Clipse, Volume One, Amiga Graphic Enhancements for the Video Professional. It includes seven disks packed with everything you need to spruce up your video.

The premiere feature is 20 big, super-clean fonts, each from 100 to 160 points tall. These huge, bitmapped fonts are perfect for video titling and logo graphics. Both regular Amiga and Video Toaster formats are conveniently included. Toaster users can use the fonts immediately.

In addition, three clip art font sets are included. These special symbols and graphics are available as simply as typing a key on the keyboard. Choose from holiday graphics, business symbols, credit card signs, borders, caption balloons, pointers, and more. Several static backgrounds are also provided. *Suggested Retail Price: $99.95, Graphically Speaking, Inc., 2574 PGA Boulevard, Suite 107, Palm Beach Gardens, FL 33410, (407) 626-3347, Inquiry #229*



Video Visions

Continuing to roll out quality bitmap 24-bit and now structured art, CV Designs introduces two new volumes to the ever-expanding library of images already in circulation. Volume 11: The Reporter: School-Sports contains school sports scenes, school environments, and a host of graduating scenes. This two-disk set of hi-res art is perfect for adding a final visual touch to video yearbooks or graduation videos. Volume 12: The Producer: Religious-Political is a collection set up for videographers who need religious scenes for a ceremony or celebration, such as a First Communion, Wedding, or Confirmation. Show a political statement with patriotic scenes or use the images to enhance a War-in-the-Gulf tribute. *Suggested retail price: $25.00 per volume, CV Designs, 61 Clewley Rd., Medford, MA 02155, (617) 391-9224, Inquiry #230*

X-CAD 2000/3000/3D

These new X-Cad products have a new, intuitive user interfaces, new tutorials, complete AutoCAD DXF compatibility, as well as 3-D database and modeling tools. X-Cad 2000 is suited for the first time CAD user. Automation of the design of architectural, mechanical, electrical, and process engineering drawings is straightforward. Once these designs have been completed, they may be projected or spun in true 3-D model space and viewed in orthographic, isometric, or perspective orientations. X-Cad 3000 includes industry standard graphics tablet support, 3-D surfacing commands, and automatic hidden line removal. X-Cad 3D is for existing X-Cad Designer and Professional users who require 3-D modeling tools to complement their existing 2-D CAD software. *Suggested Retail Price: X-Cad 2000 $199.00, X-Cad 3000 $599.00, X-Cad 3D $499.00, Applied Vector Technology, Point West, 1042 Uxbridge Road, Hayes, Middlesex, UB4 ORJ, (081) 573-9694, Inquiry #231*

• Hardware •

Airlink 2

The Airlink 2 connects to the second mouse port and contains an infrared receiver and transmitter. Output for remote-wired infrared LEDs is also included. Make pop-up window duplicates of your favorite infrared remote controllers. A library of LD, CD, and VCR, Amiga Vision, Bars&Pipes, HyperBook, and ARexx examples are included. Trigger IR commands from the mouse, hotkeys, timer, ARexx, MIDI, serial, or parallel port. *Suggested retail price: $50.00, Geodesic Publications, P.O. Box 956068, Duluth, GA 30136, (404) 822-0566, Inquiry #232*

Digital Sound Studio

A complete low-cost sound and music solution for the semi-professional and the audio hobbyist is now available from GVP. The system consists of a small, high-quality 8-bit stereo sound sampler that connects to the parallel port on the Amiga 500, 2000, or 3000. Any RCA-type audio source can be connected to the sound sampler, allowing the user to edit music, add special effects, compose a song, and even create a video soundtrack. Other features include cut, paste, mix, filter, echo, reverberate, fade out, fade in, play backward, speed playback, and slow playback. *Suggested Retail Price: $125.00, Great Valley Products, 600 Clark Ave., King of Prussia, PA 19406, (215) 337-8770, Inquiry #233*

Impact Vision 24

A new multifunctional color enhancement board which will allow video professionals to create broadcast quality video pictures,

images, and animations is now available from GVP. Designed for use with the A3000, Impact Vision 24 is also compatible with the A2000 by using a small video adapter board. There are built-in genlocks for RGB analog and composite video signals , a frame buffer, digital keyer, and a flicker fixer. Choose from 16 million colors in the 2-D paint package . Also, 3-D rendering software is included. *Suggested Retail Price: $2199.00, Great Valley Products, 600 Clark Ave., King of Prussia, PA 19406, (215) 337-8770, Inquiry #234*

Infrared Remote Controller

Edu-Vid's Infrared controller plugs into the parallel port of the Amiga and allows a VCR or any other infrared remote controlled device to be operated by a user's program. The Controller can learn the IR pulse codes from the remotes of most devices. It can also detect when the VCR is actually sending a video signal and it can, with suitable monitors, switch the screen from computer output to video output. In addition, touch tones can be placed on the videotape and the controller can detect them such that your computer program can do various things such as mix the Amiga's sound of voice with the video sound, or overlay computer output on the video output if a separate genlock is used, or simply stop the video while the computer outputs to the screen. The unit requires four AAA cells and includes the cable to the Amiga, two VCR cables, a disk with sample programs, software to use Amiga Vision and any video disk player, and a detailed User's Manual. *Suggested retail price: $200.00, Edu-Vid Research, P.O. Box 149, Pembina, ND 58271, (204) 668-2062, Inquiry #235*

Professional ScanLab II

A hardware and software controller for the Sharp family of high-end color scanners, PSL II is a totally new replacement for Professional ScanLab, the product that launched hi-res color imaging on the Amiga.

PSL II consists of a high performance GPIB interface board, cable, and two software drivers. An Art Department Professional module version makes all of ADPro's advanced image processing capabilities available immediately after the scan completes; even the ability to control the scanner from ARexx. *Suggested Retail Price: $800.00, ASDG Inc., 925 Stewart St., Madison, WI 53713, (608) 273-6585, Inquiry #236*

TBCard & TBCard PLUS

I.Den has introduced two new time-base correctors. Both TBCs are plug-in cards that may be used as input sources for such devices as the NewTek Video Toaster. Both units are full-frame, use new surface mount technology, use component processing. A wide bandwidth of 5.5MHz will enable time-base correction of hi-res VCR signals, such as Super VHS, Hi-8, and U-matic, with maximum signal fidelity. Both cards will have a dual function as genlockers.

The TBCard, suitable for low-end applications, accepts Y/C and composite signals. Proc amp control and system timing can be carried out by potentiometer adjustments on the front of the board.

The TBCard PLUS has a wider range of input and outputs, 4:2:2 processing, making the unit more suitable for mid- to high-end applications. Proc amp control and system timing will be accessible from an exterior box and all proc amp controls will have presets. An optional main frame with power supply will also be available for the TBCard PLUS. Up to 10 TBCard PLUS units can be mounted in each main frame. *Suggested Retail Price: TBCard $1100.00, TBCard PLUS unavailable, I.Den Videotronics Corp., 9620 Chesapeake Drive, San Diego, CA 92123, (800) 874-4336, Inquiry #237*

TDL487 Video Delay Line

The NewTek Video Toaster has an internal 400+ nanosecond delay which must be accounted for when integrating it into the broadcast or post production use. The TDL487 provides a 360 nanosecond fixed delay and a 127 nanosecond switch variable delay which can easily be timed to the Video Toaster signal. In addition, the TDL487 can be used for timing inputs 2, 3 and 4 on the Video Toaster to input 1. *Suggested Retail Price: $275.00, Allen Avionics, Inc., 224 East Second Street, Mineola, NY 11501, (516) 248-8080, Inquiry #238*

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• Books •

AmigaDOS Manual, 3rd edition

This book completely covers all commands and functions of AmigaDOS, up to the latest release 2.04. Officially endorsed by Commodore, The AmigaDOS Manual has three parts: The User's Manual, The Developer's Manual, and The Technical Reference Manual. Each part is designed to help users at their appropriate level of expertise. The novice will find the first section to be exactly what they have been looking for. Sections 2 and 3 will help intermediate to advanced users to customize or create new application programs. The AmigaDOS Manual describes this powerful operating system thoroughly and methodically. *Suggested retail price: $24.95, Bantam Books, 666 Fifth Ave., New York, NY 10103, (212) 765-6500, Inquiry #239*

• Miscellaneous •

Amiga Artists on the Air

Willow Mixed Media announced the availability of VHS copies of the series entitled "Amiga Artists on the Air." The series is a showcase for Amiga Artists and welcomes submissions. Each program is approximately 30 minutes in length and includes interviews with the artists or biographical materials about them, along with many examples of their work. Information is given about how the art was conceived and developed. Amiga and video tools are often explained and demonstrated. Amiga Artists on the Air is available to run on local cable channels. *Suggested Retail Price: $15.00 per volume, Willow Mixed Media, Inc., P.O. Box 194, Lennox Ave., Glenford, NY 12433, (914) 657-2914, Inquiry #240*

KA-1 series II Keyboard Adapter

This new keyboard adapter, designed by Breck Ricketts, enables you to use the world's best-selling enhanced keyboards on the entire line of Amiga computers and CDTV. Just flip to XT mode, plug in the KA-1, then plug into your Amiga. Every key is mapped, adding eight or more new keys, including F11 and F12. It is completely user-configurable with standard AmigaDOS 1.3 & 2.0 keymaps for software compatibility. Foreign keymaps are fully supported. *Suggested Retail Price: $54.95, Top Secret Device, 1610 George Washington Blvd., Wichita, KS 67211, (316) 685-4763, Inquiry #241*

Tote Products

A new line of carrying cases have been designed to protect your Amiga computer (and monitor) during transportation. These carrying cases have heavy duty YKK self-healing zippers with dual sliders, cushioned wraparound handles, and adjustable and detachable, suede-padded shoulder strap, and are water repellent, and light-weight for carrying ease. The cases are made of 1000 Denier Cordura nylon with high-density foam insulation for shock absorption. Choose from black, blue, or gray. *Suggested Retail Price: Tote CDTV $97.90, Tote 500 $73.90, Tote 2000/2500 $90.90, Tote 3000 $76.50, Tote 1084/1950 $76.90 ($65.90 with the purchase of a Tote 500 or 2000), D.J. Distributing, P.O. Box 654, Bountiful, UT 84011-0654, (801) 299-1208, Inquiry #242*

• Neat Stuff •

Applied Creative Arts

From now until March 1992, Applied Creative Arts is having a slide sale. With a 48-hour turnaround, this is the lowest price ever for slide downloading. All standard IFF resolutions up to 640 x 400 or HAM resolutions up to 320 x 400 are accepted. A minumum order of10 slides is $4.50 per slide, 11 to 20 slides is $4.00 per slide, and 21 or more is just $3.50 each. Duplicates are $1.00 each. Add $3.00 for shipping and handling. *Applied Creative Arts, 55 Grace St., Malden, MA 02148, (617) 322-4571, Inquiry #243*

(continued on page 91)

REVIEW

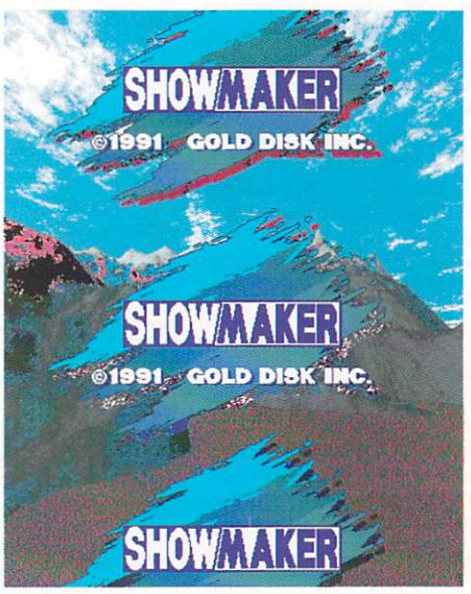
GOLD DISK'S

ShowMaker

"Professional Desktop Video"

by Frank McMahon

TRADESHOW DEMONSTRATIONS have dazzled the Amiga public with what Gold Disk calls its "Complete Desktop Solution." What makes it so special? Unlike other multimedia presenters of recent years, DeluxeVideo III from Electronic Arts for example, ShowMaker goes beyond just controlling Amiga graphics and music. Its ability reaches out to genlocks, video recorders, optical disks, laser discs, as well as full control of NewTek's Video Toaster. With built in titling, MIDI/SMPTE support, autoloading/preloading, ARexx, storyboarding, and cuesheets, ShowMaker has a lot going for it. Sound too good to be true?



A Graphic Event plays. The background was created using Scenery Animator from Natural Graphics.

Showtime!

The ShowMaker package comes with four disks: A program disk, fonts disk, and two disks full of hi-res background screens.

It also comes with a five-minute videotape that was produced entirely using the ShowMaker software and various pieces of hardware. Since the software controlled all these variables, no traditional straight/cut or A/B roll editing on videotape was involved. The video is impressive to say the least. With 24-bit animation, titles, Toaster effects, and pulsating music score, it is truly a work of art and provides an excellent source of inspiration as to what can be produced with ShowMaker.

ShowMaker requires 1MB of memory but 2MB and a hard drive are recommended. Upon booting up the program, you are greeted with the "Production Window." This is where most of the assembling will take place. Inside this window are long black bars called Tracks. Individual action commands called Events are pasted on these lines, such as playing a score or displaying a picture. All cutting, pasting, and moving of events are made with the mouse. Above is the Production Length which gives a real-time amount of how long the current production will run.

Also, an adjustable Preload Time lets you load in pictures, music, and animations ahead of time for smoother flow. If you have a 40MB hard drive you could continuously play its entire worth of data (sounds, Toaster commands, animations, etc.) with the "Dynamic Preloading." The program evaluates such aspects as memory and hard drive access time to correctly make sure your data is preloaded efficiently and then "dumps" the data from memory after it is used to make room for the next picture or animation. There is even an option to decompress graphics during the loading process rather than before a display for added speed.

Below in the Production Window are toggle switches for various editing

modes. These modes allow you to insert events, change the duration or location of events, and make global changes, where you move entire groups of animations and music. All are mouse-controlled and are as easy as moving the "handles" that surround each event. After extensive production development, I can honestly say that this is the easiest method of assembling I have ever seen.

Adding a picture is as easy as clicking on a "Track," and dragging out the duration bar. Where DeluxeVideo III allows more options with multiple layers, it's also easy to get bogged down in submenus. ShowMaker allows less graphic/music flexibility (nowhere near DeluxeVideo III's arsenal of effects) but with a much easier and simpler interface. Also on the Production Window are Event Time displays that show the exact beginning and end of your presentation. Playback buttons will play back the entire presentation from the beginning or from a specific time. There are icons to go to the Storyboard screens and the Cue Sheet displays in the Production Window. We'll get to those features in a bit.

If you click on any of the events on the tracks, a window appears with pertinent info about that specific occurrence.

For example, clicking on a graphic/animation track will produce a window that will let you know the file's directory path, resolution, color amount, frames per second, loop status, memory used, and load time. There is also a small graphic representation of your animation (first frame) or picture in the window, which is a nice touch. Frames per second can be altered and there is even a separate line for comments you wish to type in. Wipes are included in this window along with the wipe duration. About 35 two-dimensional wipes are provided including variations on sweep, spiral, tile, blinds, dissolve, and zoom. This is standard stuff we've all seen before. Maybe I'm spoiled by the Video Toaster, but publishers should at least try to catch up with the advance wipes of Pro Video Post from Shereff Systems, a program that proves you don't need additional hardware to get fancy. A preview button lets you see the graphic/animations at any time. Music Event windows allow altering features such as tempo, instrument path, loop, and instrument type, MIDI, Internal, or a combination of both.

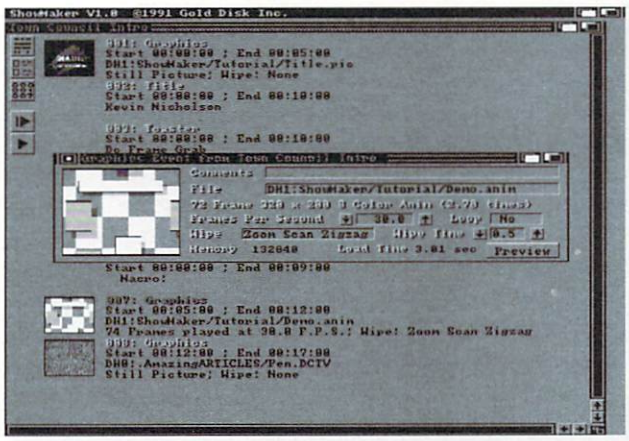
Other Events include adding Titles with provisions to use any Amiga font, margin justification, shadow/extrusions, and color selection. Titles produced by ShowMaker can be scrolled over animations and animated to move across the screen using the supplied commands such as weave, crawl, and roll. They can even appear over other graphic screens or over the impressive supplied background screens. MIDI Events include options for control, pitch, program, note on/off, channel selection 1-16; and the MIDI event window even sports hex code representation, a nice touch. Sound Effects Events allows tuning, stereo placement, and volume control. Control of ARexx has its own Event Window also and it's as easy as typing in the ARexx command, Macro or String, and hitting preview to test it. The Genlock Control Track Window allows you to set exactly how much of the foreground or background will show via sliders.

The Video Toaster track allows pretty much complete control over the Video Toaster's many features; we'll put it to the test after we go over ShowMaker's other features.

In Time with the Music

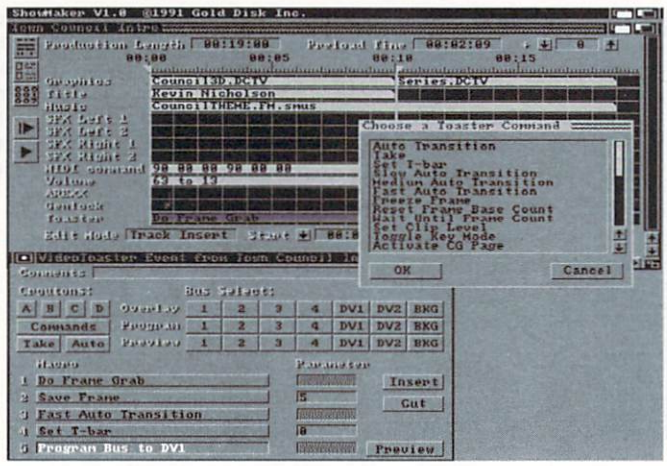
I was impressed with the intelligent way that ShowMaker handles timing. The standard options are to show the tracks in intervals of seconds, five seconds, 20 seconds, and one minute. But ShowMaker allows displaying and syncing in music style as well: beats, measures, four measure intervals, and eight measure intervals. This allows your internal or MIDI song to be very easily matched up with the display of your graphics and animations. The Auto-Sync feature slaves the playback rate to the tempo of music events. Scores I had written in Bars&Pipes Professional were loaded in and I could time the graphics to "hit" on the beat at the same time as the music was playing through my MIDI system, outputted via a Kawai K-4 keyboard. The auto-sync allowed me to alter the tempo of the musical score, bringing the tempo of the production right along with it, slaving the production and all musical "hits" intact and on-time!

SMPTE (Society of Motion Picture and Television Engineers) time code is the standard used at our television station. It is used in most professional audio and video productions to synchronize two audio or video tape decks. ShowMaker supports SMPTE, as well as options for MTC. MTC or MIDI Time



Storyboard screen with selected Animation Window for checking and altering data.

Code is SMPTE control information converted into standard MIDI data (ShowMaker will not do this conversion, it must be produced by separate hardware.) I was also happy to see that ShowMaker can slave to an external MIDI Clock. MIDI Clocks have the advantage of a variable timing base according to the control information. Again, this allows a production to slow down or speed up by altering the MIDI tempo. My enthusiasm for musical variables may not be shared by everyone, but it should be. Anyone engaging in any form of video production should really look into producing music using MIDI controlled keyboards or rack-mount tone generators. Amiga music programs make it *very* easy to create soundtracks, which are *esential* to any video production.



ShowMaker's main interface screen showing the various options in the Toaster Event track.

Serial Devices, Story Boards, and Cues

How does ShowMaker control VCR's and Disk Players? It exercises control through the serial port (RS-232) on the back of the Amiga. You may have to purchase additional boards which provide additional serial ports if you would like to control more than one device (say two VTR's). A handful of Laserdisc and VTR's are supported with new ones through updates. Basically if your machines have a serial port, then they will now, or eventually will, work with ShowMaker. While a writable optical disk may be beyond some budgets, some laserdisc players would be better choices, but offer limited related source material. Most video producers will be interested in the VCR's, of which ShowMaker supports the PC-VCR and the Panasonic 1960. The Panasonic 1960 S-VHS decks have become increasingly popular in the past several years because of their low-cost editing features. I have a pair myself in my home studio along with the FutureVideo edit controller. ShowMaker supports only the newer model of the 1960, the Panasonic Selectra 1960-RS, which comes with a built in serial port.

Full command windows allow all devices to be set according to baud rate, buffer size, read/write bits, stop bits, parity and handshaking. Sound like modem talk? It's basically the same method of transferring information in digital bits, from ShowMaker to the device via the serial port. Commands for play, fast forward, still, step, record, stop, cue, frame, and more are all supplied along with a preview command.

Also provided in ShowMaker is an optional Cue Sheet and Storyboard. The Cue sheet lists some of the pertinent info of the various events in text form. The advantage is that it can be exported to a standard text file for review. The Storyboard goes even further in that it displays much more information in addition to showing a small graphic representation of the picture or animation.

Toaster Show and Tell

"If you have a Video Toaster, you NEED ShowMaker." The ad copy blazes this, but it's not really true. ShowMaker will not let you do anything that you cannot already do with the current Toaster software. In fact, anyone with ARexx can do the same thing with a little programming, controlling the Video Toaster via the ARexx port. The advantage with ShowMaker is that you can easily set up a series of events that can be arranged to happen at very specific times. For example, if you wanted to load a picture, spin it in, then spin it off, you could do it quite easily. In theory, Gold Disk makes it seem that controlling your Toaster with ShowMaker is easy. There are several very important variables that must be considered in order to achieve this goal.

There are two ways to control the Toaster with ShowMaker, either externally or internally. Internally, you would multitask ShowMaker with the Toaster software. Not good.

The Toaster software controls the machine during events such as switching making smooth multitasking difficult. You will not get accurate timing since the Toaster software interferes with ShowMaker's timing, defeating the purpose of the track's time-based structure. You can't display graphics since the Toaster interface screen must be out in front of the RGB display. Music and sound? Don't ask. Did I mention that none of this will even work if you don't have ARexx installed?

My testing didn't go very well as you may have already guessed. After installing ARexx and loading the Toaster software I went to Workbench (tap the control key twice then Alt key twice from the main Toaster screen) and got ShowMaker fired up and ready to go. The Toaster Parameter window allows selection of the Toaster crou-

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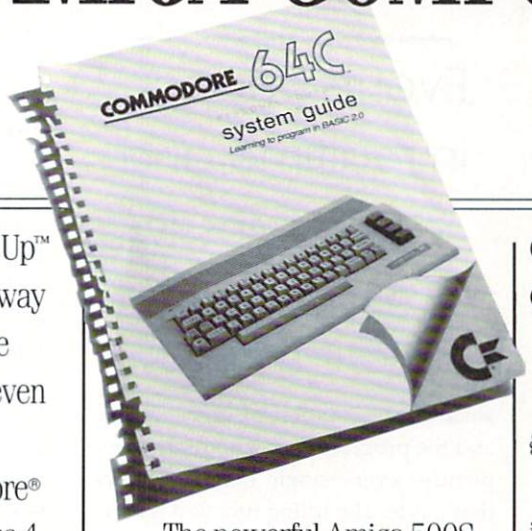

The Commodore Power Up™ program is the easiest way to buy an already affordable Amiga® 500 computer for even less.

If you own a Commodore® 16, 64, or 128; or a Pet, Plus 4 or VIC 20, write the serial number on the cover of the original owner's manual (no photocopies) and take it to your authorized Commodore-Amiga dealer. You can save $300 on an Amiga 500P (off the MSRP of $799). And $200 on an Amiga 500S (off the MSRP of $599).

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tons, commands, one to four inputs and the frame buffers. There are numerous commands available like transitions, freeze frames, clip level/keying, and activating a CG page. There can be a combination of five commands per window, but you can add as many windows as memory permits allowing long stretches of Toaster effects. After stacking commands up, I previewed the track and the computer locked up every time. Next I tried some less-intense combinations and although the effects worked the timing was unpredictable. Since the Video Toaster software only requires 4MB to operate (5MB to use ToasterPaint) and ShowMaker requires 1MB to run, I figured my 5MB of 32-bit RAM would be perfect. Judging from the problems, though, I guessed I had assumed wrong. Having 6-7MB would probably leave more breathing room for both programs. Another problem is when the ShowMaker commands are done, it stays on the Toaster interface screen, rather than going back to the ShowMaker program. Bummer.

The second option, if it can be called that realistically, is to run the Toaster on a second remote Amiga. You would need one Amiga with 5 MB and hard drive, one Amiga with 1MB (or more) and hard drive, and a null modem serial cable running between the two. With this set-up, ShowMaker performs like a champ, no limits and perfect timing, the sky being the actual limit. Unless you are seriously involved in multimedia or video production, the average Amiga user does not own two machines. Aside from the major drawbacks, it was certainly a kick to set up commands for the Video Toaster in an external program and have them executed. I wish it was just as easy as the box claims.

Conclusions

Unfortunately, I think because of the slick ad campaign a lot of Amiga users will buy ShowMaker expecting to get more than they actually will. I know Toaster users will certainly have their interest sparked. After weeks of testing, I've come to the conclusion that ShowMaker is an excellent program, if you have the hardware to use it. The video tape included was produced with ShowMaker, but what else? Let's see...340 MB Maxtor hard drive, ASDG Dual Serial board, Digital Processing TBC, ECE MIDI Interface, Panasonic Optical Memory Disc Recorder, GVP 3050 50 MHz 68030, two Amigas, etc. The program seems best suited for industrial studios, to say the least.

On the software side, the storyboard function is very slow on a stock 68000 but much faster on a 68030. The reason is that it takes time to calculate a small representation of each graphic and the program re-calculates the tiny pictures every single time you enter that mode. The titling function is slow and clunky. Its hi-res animated titles look more like lo-res animated titles from DeluxeVideo 1.0.

> Events happen in realtime and are flawlessly executed.

There needs to be more options for VCR control such as hook-ups for Panasonic 5-pin and Sony's control L. This would greatly expand the range of VCR's that could be used beyond the only two currently supported. Even the earlier mentioned FutureVideo editor (FutureVideo Products 714-770-4416) has a serial interface that attaches to the Amiga (This allows me to control and edit with my Panasonic 1960s using their Amiga Editing software.) ShowMaker could control the frame-accurate editor to allow using some of the wide range of VCR's that this unit supports. Also the 24-bit issue should be addressed since the Amiga seems to be heading in that direction. The Toaster is a good start but ShowMaker needs to directly support hi-color units such as the Firecracker 24, Ham-E, and Colorburst. Most of the 24-bit files and ANIMx were saved to laserdisc and cued up in Gold Disk's demo tape. However, there were several DCTV animations included on the demo tape (played from RAM), some of which were even keyed over the optical disks images. Through my own testing, DCTV pictures and animations work perfectly in ShowMaker; in fact most of the WIPES in ShowMaker work great with DCTV display files!

Except for the jittery built-in titling and the Toaster mis-fires there is a great program here. It is so easy to use and its flexibility and excellent timing options assure it will be around (with updates!) for quite awhile. For the industrial video professionals with the optical disks and hi-end decks, ShowMaker allows something no other program can—Digital Editing. Events happen in realtime (graphics, video, animations, etc.) and are flawlessly executed. Just hit Play on your Amiga and Record on your deck. It's that easy (well almost). For the customers, most probably won't be able to use many of ShowMaker's features due to hardware limitations. Gold Disk has done wonders for the hi-end users with this program. I hope they start to work on the other end.

•AC•

ShowMaker
Price: $395.00
Gold Disk, Inc.
5155 Spectrum Way, Unit 5
Mississagauga, Ontario, Canada
L4W 5A1
(416) 602-4000
Inquiry #200

Please Write to:
Frank McMahon
c/o Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869

ASDG's

The Art Department Professional

An Artist's Perspective

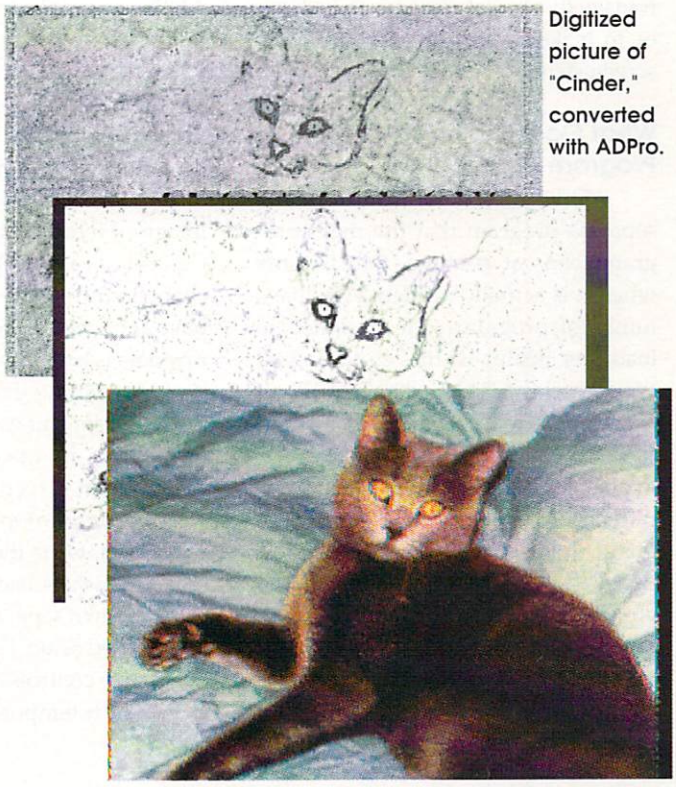
by Merrill Callaway

ASDG CALLS THEIR *Art Department Professional*, (ADPro) "an integrated set of powerful image processing tools which facilitate the creation of high quality pictures." Integrated and powerful it is. ADPro allowed me to explore a world of new images impossible to create otherwise. For instance, ADPro can composite two or more of my IFF pictures (in full 24-bit color) by averaging the color and brightness of overlapping pixels.

ADPro is essential if you convert between file formats. If you want to load a HAM picture into DeluxePaint III, which will not naturally take in HAM, you can load and convert the image in ADPro and then save it as a 32-color IFF image which DeluxePaint III will accept. In fact, it is possible to load and save images from Macs and IBM PCs that you can't even display on your Amiga! You can have ADPro render these "illegal" images in any Amiga video format, and then save them back to IBM, Mac or to Amiga format. That's hot!

ADPro is a "rendering engine" for use in Amiga video. Any image data can be rendered in any of the Amiga video formats. ADPro keeps the loaded image 24-bit data intact in a RAM buffer so you can render it (output to the screen) in any way you like and still keep going back to the original data and render it in different ways until you like what you see. The final image can then be output to a disk file, or to various hardware devices. If at any point, you want the rendered data to permanently transform the raw image data, you use an Apply_Map Operator.

Are you a desktop publisher? Or do you want to output your computer-generated greeting cards to a color printer at the local PostScript service bureau? Use ADPro! It has a powerful and detailed PostScript Saver and a color separa-



Digitized picture of "Cinder," converted with ADPro.

tion module to produce 12- and 24-bit separations in gray scale or color for printing. You can output in EPS (Encapsulated PostScript) when something else like text is going to share the page; and output in regular PostScript when only your picture is to be printed and you want to control the layout of the whole page and the position of your graphics on it. Use the color separation module, to render images to heat-transfer film to make images on T-Shirts, or to make three- and four-color silk screen stencils.

The result of the LINE_ART Operator on a 16-color gray scale picture, converted from the color picture. Cinder is now a charcoal sketch.

What Goes On In The ADPro Program

ADPro is modular. A module is a separate program that the main program loads at runtime, that is, only when it is actually needed. Why have hunks of program code designed to load, say, Sculpt 4D files cluttering up your precious RAM when you don't even own a copy of Sculpt 4D? That's the sound logic behind runtime loadable modules: ADPro has a separate Loader for Sculpt 4D, as well as a Loader for each file format ASDG supports. You can leave these Loaders off your hard disk, until you obtain their respective programs, and ADPro will run just fine. The main program is a module, too. It stores the incoming picture data, rearranges the rendered data or perhaps the raw data, into a different size, color palette, display format, etc., as you direct. Then it sends the data via saver modules to whatever destination files or hardware devices you specify. Savers are also included in the ADPro package that are more like what most of us know as drivers—software that outputs data to a specific hardware device like a Firecracker 24 Board. ADPro is simply the cat's pajamas in the field of image processing flexibility!

In the main program, ADPro has a number of complex and powerful features that enable you to do many interesting and necessary things to your images. Here we find Operators and Controls. A Control is something that changes the Rendered data and you have a chance to do it again because the raw data is kept intact; while an Operator is something that changes the raw internal data and cannot undo or even stop doing its operation midstream. There is an Execute_Op button for committing to an Operator. An example of an operator is the image-sizing operator which is used so much that it ranks its own separate area with a button marked Scale. For controls, ADPro has Screen controls and Balancing controls which temporarily change what happens to the rendered data when you click on the Execute button. To avoid confusion, you really need to understand the difference between Raw and Rendered data, and the difference between Controls and Operators, and the difference between Execute and Redisplay. The Redisplay button just redisplays the last image rendered with Execute. It never changes the rendered data or the raw data. I found the best way to understand raw and rendered data was to experiment. The people at ASDG are friendly and helpful if you have questions.

System Requirements

If you don't have at least 5MB of RAM, don't buy ADPro yet. ASDG says you need only 3MB minimum, but you will soon want to expand your RAM. Graphics eat memory and a 24-bit graphics program that maintains internal raw as well as rendered data is an absolute glutton. I found on my A2000 with 5MB of RAM, that frequently there were things I couldn't do, such as work with hi-res pictures: I simply ran out of fast memory, fast. After I maxxed out my SupraRAM card to 8MB and did the recommended MergeMem in my startup-sequence (ADPro likes contiguous memory), it was smooth sailing. If you have a lot of memory, you can limit how much ADPro allocates by means of a MAXMEM ToolType in the icon info file. You can set any number up to the amount of your RAM. When I added an A3000 to my studio, ADPro wouldn't even open its screen with the stock 2MB that came on the A3000. Eight megabytes of static column 1x4 ZIP RAM immediately fixed my computer's forgetfulness. ADPro is lame without a large amount of memory, but it's not ASDG's fault; it's the result of the demands of 24-bit graphics. Acceleration is not a must-have but it's something you will insist on once you use it. ADPro seems somewhat slow on the A2000. My own perception of ASDG's claims of "fast" is that it's fast for what it does, on the

platform on which it does it, but that it's slow in an absolute sense—meaning it runs a little slower than almost all your other software except your 3-D rendering packages; it's much faster than they are, at least. It's a fine piece of work, and unique. Speed is just another one of the prices you pay for 24-bit graphics.

Installation

ADPro is easy to install. You simply click on the Install icon. You should have a directory already made up with a drawer icon and so on before you install. The install program prepares all the rest of the directories for all loaders and savers and operators for you automatically, so the process is quite simple. ADPro will also work from a floppy with a bootable Workbench and the install will work on a floppy, too, except that you cancel the install after the library is installed. One library, the Dawson/Fox requester library is copied to the libs directory of your sys disk. If you run ADPro from the CLI or Shell, you need to assign ADPro in your startup-sequence to the proper drawer. That's it! I have installed one update (V1.0.3) and a CI-3000 Driver and in both cases the process was a breeze. These updates and options added several loaders, savers, and operators. The program looks the same but the new features magically appear in their requester buttons. The interface is designed to be modular as well. You click on the right side of any given button to step through all the possibilities—in alphabetic order—in one direction, and on the left side of the button to go the other way. It's a combination string gadget and button! The program remembers which one you used last and wakes up with that button choice showing.

The Manual and the Interface

The ADPro user manual is divided into sections marked with colored tabs in a loose leaf notebook. This makes updates easy. Also, finding the documentation on a particular control, operator, saver, or loader is easy. All sections are numbered logically. There is also an extensive ARexx section listing commands to perform ADPro functions from outside the program. Overall, I think the documentation is too variable both in quality and detail. Things almost everyone understands, such as the operations of a file requester or buttons are covered in very rich detail, and repeated frequently. This is great; it should be the standard for the whole manual. Unfortunately, it isn't. Some sections such as the palette control, number of colors and offset of color zero; the relationships between the various controls; and what they do to the raw and the rendered data and when they do it, are frequently cryptic. Key points and warnings are spread over several pages and sections without cross reference or repetition. This results in many "Gotcha's." I wish there had been more information on some things and that relationships between different parts of the program had been organized better, for ADPro is not really intuitive, or visual. Even though it deals with images, it is anything but WYSIWYG (What You See Is What You Get), so that the manual is the only key to many subtle effects. The index is poor, meaning that over half the time what I need isn't even listed. On the plus side, the manual sections are well organized and the index wouldn't be very important were there more meat in the text of the manual. There are too few tutorials or ready-made ARexx utilities as well. Most of the features are left for you to discover on your own or are only mentioned in a way that presumes knowledge you may not yet have. This is a program for artists or at least people dealing with images, and some sort of graphical interface coupled with a "make" preview and a "commit" option would be welcome and natural for us who are "left brained." I called Perry Kivolowitz, the president of ASDG, and communicated some of my concerns. He was most responsive. As I suspected, they are hard at work on a more WYSIWYG interface, and as they get feedback from people like you and me who use the program, the manual can only improve, too. I certainly compliment the author's restraint in rendering the interface in a pleasant neutral gray color. The last thing I want is for my image processing software to clash with my images. Some Amiga software is an eyesore; ADPro is tasteful. The programmers certainly shouldn't limit WYSIWYG features in ADPro because of a theoretical projected user's "minimum RAM" re

The SCALE Operator was used to resize the lo-res line drawing of Cinder up to the larger size hi-res digitized picture of a cement sidewalk.

quirement of 3MB. A program sold as a "professional" tool would do well to assume users have more RAM than 3MB.

Program Settings

One thing I greatly appreciate is ADPro's ability to remember your last settings when it comes up. You can turn this feature off or on. In fact you can have or not have Defaults for ADPro itself, which Loader is visible when ADPro starts up, which saver is up, and even the file name of the Default file. These may be entered into the icon "information" file as ToolType entries.

Loading or Saving an Image

In the upper-left corner of the ADPro screen is the Load Format button. Clicking on the right or left side of this button causes ADPro to step through the alphabetized choices of Loaders forwards or backwards depending on which side you clicked. The standard loaders include BACKDROP, DPILE, DV21, FRAMEGRABBER, GIF, HAM-E, IFF, IMPULSE, MacPaint, PCX, SCREEN, and SCULPT. The Save Format button above the Load button operates the same way, and you can step through all the possibilities of save formats, too. The standard savers include DPILE, FC24, FRAMEBUFFER, GIF, IFF, IMPULSE, PCX, POSTSCRIPT, and SCULPT. The actual Load or Save command is handled inside the Commands section in the upper right hand section of the ADPro screen. At the time you load the image you can set the Orientation button which determines whether the orientation is LANDscape (sideways) or PORTrait (up and down). You can also perform rotations and flips from the Operators section at the lower left of the ADPro screen. Combined with the Land or Port button, you can rotate the image 0, 90, 180, or 270 degrees with respect to the data residing on the disk. The manual has a handy table to help you.

At the time of Load, you can specify "COMP" or "REPLC" in a button just to the left of the Load button. "REPLC" simply writes over anything previously loaded. "COMP" is the powerful Compositing feature. Choosing "COMP" brings up a requester at every load, except the first, that allows you to choose the percent amount you wish to mix each new image pixel with its underlying pixel in the first image or the latest composite image. The position where you want to overlay the next image may be specified in coordinates or with an "almost WYSIWYG" draggable rectangular box with no picture information in it. You also may specify the color of the color zero (which color in RGB values you want to be transparent in the image to be laid down.) If -1 is entered in the three requesters, no transparent color is allowed. This composite requester is central to the program, and there is room for improvement. It is frustrating not to see any hint of the results until you render with Execute. You have to premeasure the exact pixel locations of the corner of the second picture if you are not doing a one-for-one overlay, or you have to guess about how your picture is going to composite based upon two blank rectangles about two inches high, one of which you can drag around on top of the other. Even a thumbnail approximation of your pictures here would be better than what is used now. There is no preview of the effects of the transparency settings, either. On my slow A2000 it is very frustrating. If it isn't right, I have to start from scratch. Nevertheless, I love what the composite feature does: it's unique and I know that some of its annoyances will be addressed in future releases/upgrades. Right now, it isn't very satisfying to work with the interface due to the lack of WYSIWYG. What's important for now is the power of this tool! If you keep after it, you can work around any of the shortcomings of the interface and the manual. One last thing about compositing is that you can load a backdrop and then composite all sorts of things to it. Your backdrop is a Load Format and must be chosen there. It can be big. You can composite pictures side by side or overlapping if you load a large backdrop first. It can be solid or graduated in color, also. The illustration shows a graduated backdrop created with equal red and green corners, with a screen grabbed from ADPro (another of its formats!) composited at 100% and no transparent color (-1 in all requesters); and then a Workbench screen grabbed and put over that at 50% mix. It's not art, but I think it illustrates the composite method well, because we all know the Workbench blue and yellow, and the ADPro gray. You can also see that a much larger backdrop can take in pictures anywhere on it, too, and we can see the sizes of whole screens, relative to a large backdrop.

The interface is a familiar requester with string gadgets as well as sliders to move with the mouse.

The Controls: Colors

ADPro is full featured in its color controls. Balancing controls all the standard things such as brightness, contrast, gamma, and separate Red, Green, and Blue color values. The interface is a familiar requester with string gadgets as well as sliders to move with the mouse. After you accept a setting, you Execute it and see the rendered data displayed. You can do this over and over and get back to the original look, as the Balance requester is, re-

member, a Control and doesn't alter the raw data. In the Color Controls area of ADPro reside the Dithering and the Palette controls as well. You can dither in six different ways to give the illusion of more colors than you are really displaying in the rendered data. Dithering doesn't affect the raw data unless you use the Apply_Map Operator to the rendered data.

The Palette Controls feed the Rendering separately from the rest. Your palette can be picked by some very sophisticated (and effective) automatic algorithms, or you can "lock the palette" and control it manually. The value in the "Offset of Color Zero" box controls different things at different times depending on the status of the palette lock and whether you are loading a palette or rendering an image. For instance, when rendering an image and the palette is unlocked, ADPro begins making up or choosing its new colors at the position of Offset of Color Zero, so that the colors in the palette up to the offset are not changed. This feature allows you to keep some colors in a palette and let ADPro make up the rest. The other permutations of the palette controls allow you to do very complicated things with your palette. The palette control kicks in only when you have selected the Number of Colors button in the Screen Controls area (lower right of ADPro screen) by clicking until "CUST" for custom is displayed there and you have locked the palette after you edit it. Otherwise, changes to the palette controls will not be honored except for whether it is locked or not and the total number of colors displayed. Got that? I didn't either, for a long while. Unfortunately, the Palette control section of the manual is explained rather weakly. You must either let ADPro do it all, or be very careful. You can spend your time wisely by experimenting with a test palette picture. Be warned, there are many "Gotcha's!" too numerous to mention. For example, you can see the results of your new edited palette with the Redisplay button, but don't be lulled into believing that you can simply Execute now and all will be well. Without a locked palette and CUST colors set, Execute will do its own thing and wipe out your work. As it stands, it's all too easy to do something you don't want—and you can lose your patience quickly. Save or lock your palette at least, before you try anything. If you work out a palette you like, lock it, render the image, and if you like that, you can make it a permanent part of the raw data by the Apply_Map Operator. You will

The Operators perform some amazing feats on your images.

have to study the manual and experiment to get all this straight, but it's time well spent. You will have *power* over your images at last!

The Controls: Screen

The Screen Control area in the lower right of the ADPro screen provides buttons to select screen controls. In a nutshell, this area lets you choose a display for every Amiga video mode, and also process images in 128 and 256 colors for VGA and Mac uses. You will not be able to display them but you can work on them or convert them to a display the Amiga can use. The manual contains helpful tables of the various display formats. This part of the manual is excellent: well written, complete, and adequate for understanding the display types.

The Controls: File Requester

ADPro uses the Dawson/Fox file requester, which is a freely distributable software module. It is easy to use and intuitive. If you touch the slider bar, the list is automatically alphabetized; and you can perform pattern searches; read how many files are visible in the window as opposed to hidden; select devices including logical devices you have assigned, disks, directories; in short everything you need in a file requester. The manual is very detailed and clearly written regarding the file requester, and is an example of the clarity and detail I sometimes long for in other sections.

ADPro is essential if you convert between file formats.

The Controls: Separation

ADPro has a powerful separation module to control the process of converting Red, Green, and Blue (RGB) data (additive color theory) into Cyan, Magenta, and Yellow, with Black (CMYK) (subtractive color theory). A video display paints with light itself, so all colors add up to white. With inks and paint pigments, the chemicals absorb or subtract all except one wavelength of light, which they reflect back at you, and this is the color you see; and so subtractive colors must be computed on a different basis because (ideally) they all add up to black. It is far from trivial to render an image in print or ink that looks like what you had on your video screen. ADPro handles three (CMY) or four (CMYK) color separations for you automatically, and you have the choice of 12- or 24-bit data. Also, you have a choice of gray scale separations, ink compensation, and UCR (Under Color Removal), and GCR (Gray Component Replacement), which make allowances for the black component in CMYK. There is a methodology in the manual for working with Professional Page and its special idiosyncrasies. This section of the manual is well-written and complete.

Tutorials

The ADPro manual contains a chapter on Tips and Tricks in which there are 16 examples of varying complexity in the proper use of some of the features. It includes a couple of ARexx programs, too. I especially liked the section on solarization using the Dynamic_Range Operator and the one on making "charcoal drawings" with the LINE_ART Operator. I have included a "before" and "after" of the latter to show that the results can be quite remarkable. An expansion of these tips into true and detailed tutorials would go a long way to making the learning curve faster.

The Operators

The Operators perform some amazing feats on your images. Some of them are workhorses and what they do is self evident, as in the Color_To_Gray and Gray_To_Color Operators. The APPLY_MAP Operator maps your rendered data onto the raw data and resets the color controls to neutral settings. BLUR replaces pixels, which satisfy certain user definable differences from their neighbors, with the average value of its neighbors. CROPPING discards all but a user-defined rectangle. The Dynamic_Range Operator is used to prevent NTSC smear in videos by decreasing the amount of spread between the maximum and minimum values of the raw data which it remaps in two passes, one to find out what's there, and one to remap after you decide to commit. There are Horizontal and Vertical_Flip Operators which do what they say. There is a Median_Filter to reduce noise by replacing a center pixel with the median value of its eight neighbors if your specified threshold is violated. The Negative Operator makes a photographic negative from your picture. Unlike most other operators, this one is undo enabled: just do it twice.

The Line_Art Operator is the most interesting to me. It uses a sophisticated and proprietary edge recognition algorithm to transform a gray scale image into a line drawing that looks like anything from pencil sketching to a dense charcoal rendering, depending on how you prepare the gray scale image in the first place using the color controls. The manual urges you to increase contrast (and I like to play with gamma, too) and to turn on Floyd-Steinberg dithering and to render on a two-color screen. Then you Execute_Op the Line_Art Operator. I'd buy ADPro if this were the only feature. Rectangle is useless, not because of the idea, but because it's too user-hostile: you have to remember the pixel addresses of where in your image you want the upper left hand corner, and then you need to "visualize" this rectangle by its X and Y offsets! Give me a break! Give me a WYSIWYG interface at least as good as the one on the compositing control or I'll never go back to use this one. You use Remove_Isolated_Pixels with Line_Art to clean up the drawing. The

Scaling Operator is very important, and, thankfully, intuitive and easy to use. It has its own private button, because you'll use this one often. The scaling of images is superb with minimum loss of image quality in both directions. You can "misuse" this feature to get some interesting "posterizations" by radically reducing and then enlarging an image.

The Pixel_Aspect Operator is used to maintain the aspect (or ratio of height to width) of your images when they are output to a device looking for a different pixel aspect. You can change the aspect before you output to maintain the proportions in your overall image. A Tile Operator "wallpapers" your loaded bit-map with a specified rectangular area in user-defined ways such as the vertical or horizontal skew. It suffers from lack of WYSIWYG, as you must know pixel addresses and offsets. Bummer! A Transport_Controller Operator looks for a MicroIllusions Transport Controller to communicate with it to record the Amiga image in memory.

ARexx

Is that all there is to ADPro? No! You get a full ARexx interface as well. All the screen operators and controls can be run from outside a running copy of ADPro. ADPro allows you to bind up to 50 custom ARexx programs to the 10 function keys, plain function key or qualified by the Shift, Alt, Ctrl, and the Amiga keys.

Conclusions and Recommendations

If you do art or graphics, you must have ADPro. There is no real competition, yet; and ADPro is a tough act to follow. If you do not have the minimum RAM (I say 5MB, ASDG says 3MB), don't buy it. It will be the proverbial boat anchor until you have an environment in which to use it. ASDG has a major winner here, in spite of several shortcomings, mainly in the interface and the manual. It will only get better, however. The program itself does what it says it does, and that's the main thing. It's a plain-looking program with real power behind it. It will not clash with your images. You will never regret buying it unless you ignore my warning about RAM, or you are a one-paint program person with only a passing or recreational interest and no need to resize or convert or composite your images. As its name states, Art Department Professional isn't for beginners, even though it's fairly easy to use. It certainly is an incredibly versatile tool. •AC•

Art Department Professional
Price: $239.95
ASDG, Inc.
925 Stewart St.
Madison, WI 53713
(608) 273-6585
Inquiry #201

Please Write to:
Merrill Callaway
c/o Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869

REVIEW

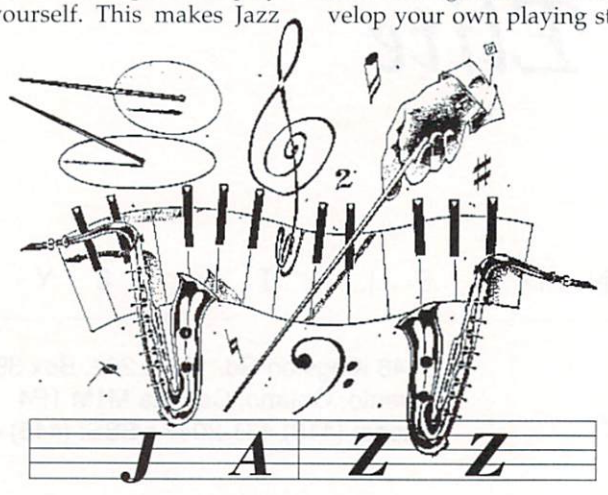
NEW SOUND MUSIC'S

Jazz Through MIDI

by Rick Manasa

JAZZ THROUGH MIDI, an interactive package from New Sound Music, takes personal computing and MIDI across the line, separating education from fun. Jazz Through MIDI makes it easy to learn jazz improvisation by having a disk of pre-programmed patterns, sequences, and solos for you to play back, practice with, solo over, or just study. It's like having a jazz band in a box.

The advantages of presenting this type of information in a MIDI format instead on audio or video tape, or in a classroom or live performance situation are many. The performances are repeatable at varying tempos and keys. You can loop performances so that they repeat. You don't need to put a band together to explore these concepts. You can examine the performance in traditional notation, as an event list or piano roll, depending on your sequencer's editing and display structure. You can mute any one of the four parts and play that part yourself. This makes Jazz Through MIDI suitable for keyboardists, bassists, horn players and other soloists, as well as drummers and percussionists. You can have different instruments playing the various parts or link different sections to make longer, unique musical passages. You can even add extra parts of your own to the sequences ("Hmmm, I wonder how this section would sound with strings in the background?") While no recording, MIDI or otherwise, can capture the spontaneity of a live jazz performance, Jazz Through MIDI can help you develop your own playing style at your own pace, as you learn what makes a good jazz performance.



Jazz Through MIDI comes on one non-copy protected disk with a 40-page spiral bound manual. The disk contains 60 jazz sequences ranging from four to 21 measures each. Since Jazz Through MIDI is a set of music files, you will need a MIDI sequencer software package, a MIDI interface and at least one MIDI instrument. If you have only one MIDI instrument, it must be multi-timbral and capable of playing at least four parts—drums, bass, piano, and lead line—at the same time. Eight voices would seem to be the minimum number required. New Sound makes Jazz Through MIDI available in Dr. T's, MasterTrack Pro, Harmoni, and standard MIDIfile format on the Amiga. It is also available in MS-DOS and Macintosh MIDIfile format, as well as in a variety of hardware sequencers formats. I mention this because it shows an understanding of what the professional musician faces in the real world of musical instruments. There is a bewildering array of synthesizers, samplers, computers, etc., to choose from these days. Unless your last name is Getty or Rockefeller, you may not be able to buy every whiz-bang box as it appears on the market. New Sound didn't overlook those with older disk-based sequencers either. Converting the files to all the available formats is a yeoman's job, and is a service that should not go unappreciated or unnoticed.

The manual is divided into setup instructions, lead charts for all sequences, and appendices that provide a set of thumbnail theory courses, descriptions and suggestions for understanding and making the best use of the sequences. These appendices are worth their weight in gold. They help the beginner and seasoned veteran alike understand what they are hearing in the sequences. They can help you apply and incorporate the concepts into your own playing without overwhelming you with information.

Because Jazz Through MIDI is available in so many formats, the manual takes a good deal of time describing proper setups for all supported configurations. A good deal of effort has been put into making setup as clear and painless as possible. The program

assigns drums note numbers to the standard Roland MIDI note numbers. Each drum name and note number is charted out in case your drum machine doesn't follow the Roland standard. Most of the section dealing with computer-based sequencers discusses setting up the files for the different Amiga sequencers. Quirks that Amiga 1000 users may run into are also addressed.

Getting the most out of Jazz Through MIDI requires you to know a bit about editing and shuffling sections around on your sequencer. The package is basically a set of sequences separated by two measures of clicks. When you hear a sequence that you want to explore, you use your sequencer's block-repeat function or its cut-and-paste feature to copy the passage to an empty section. The Jazz Through MIDI manual has a brief section on looping and lengthening the sequences and how to go about it. Unfortunately, with all the different sequencers on the market, the manual can give only the most general type of assistance.

I loaded the first bank of sequences, numbered 1-20, into my sequencer. There are four tracks of MIDI information, labeled Drums, Piano, Bass and Vibes. New Sound assumes you know how to assign your synthesizer voices to MIDI channels. I set up my Proteus sounds to match the names and MIDI channels listed for each track, turned to the first page of charts and hit Play. Shades of Milt Jackson—there's a jazz quartet in my speakers! After listening to a few of the sequences, I'm itching to join the band.

I defined a Region in Harmoni that consisted of the sequence I wanted to loop. I then copied it to an empty sequence, hit the Loop button and pressed Play again. I now have an eight-bar phrase that I can play along with. After fooling around as the soloist, I found myself muting the Bass and Piano parts and practicing the supporting roles as well. As I mentioned earlier, this wouldn't be possible in a tape format. If it wasn't so easy to make these kinds of changes, I wouldn't even bother. I'm glad it is that easy though, because knowing how to play behind the lead instrument is every bit as important as blowing the hot solo.

There is a variety of practice suggestions that can help you make the best use of Jazz Through MIDI. I especially enjoyed studying the standards and Latin solos, as played by some of the jazz greats. Being able to slow down an Oscar Peterson solo to the point where I could play it gave me a tremendous sense of confidence and accomplishment! Not only are these solos fun to try to mimic, but they can serve as jump-off points for developing your own playing style.

Most players will find the appendices invaluable. They contain a wide range of useful information about scales, voicing, substitutions, etc., condensed into about 15 pages. A couple of good read throughs will help your understanding of why some things sound better than others and how you can incorporate these concepts into your own playing.

There are some problems with the manual and files that could be ironed

out to make the package even better. While it's great to have any kind of chart, some of the charts were out of order and the printing left much to be desired. The layout is compressed to the point that it's hard to find your place when following along with the sequence. While it doesn't appear to be a dot matrix output, this printout also suffers from those cursed jaggies we've all come to know. The charts could certainly benefit from output to a Postscript service bureau and the Adobe Sonata font.

The actual performances were less than stellar on occasion. Sometimes there seemed to be too little quantizing. This may have been done to try to maintain the original feel of the performance. In many cases, the resulting performances just sounded sloppy. Sometimes the sequences were quantized too much. The aforementioned Oscar Peterson solo sounded as if it was entered in step time. In this case, feel appears to have been sacrificed for accuracy.

The E-mu Proteus is a very popular tone generator ideally suited for a program like Jazz Through MIDI. Unfortunately, it doesn't follow the Roland drum note standard and doesn't allow remapping of individual drums. Because the drum parts are merged on one track in Jazz Through MIDI, it's hard to strip each drum note out for transposing. I don't know whether every other sound module follows Roland's lead, but I doubt it. It would have been much easier to adjust the drum notes if each drum had been put on a separate track.

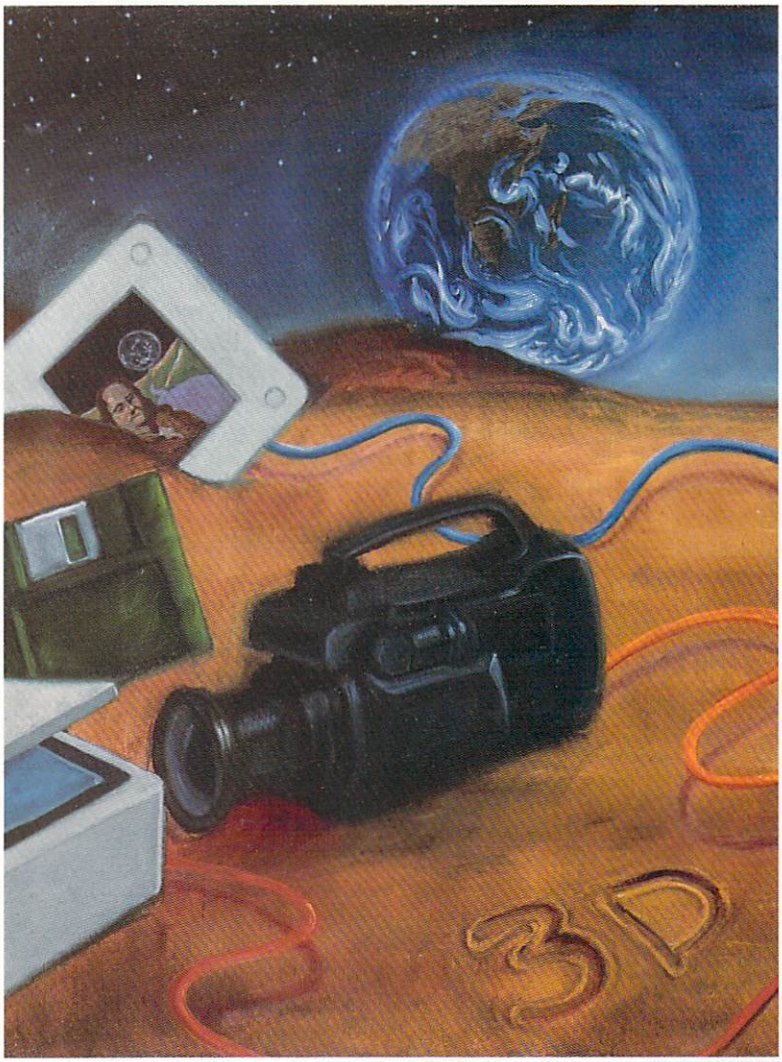
Jazz Through MIDI is what I've always thought computers are particularly well suited for. We should see a lot more of this type of product. It's a wedding of two technologies, music and computers, that helps develop an understanding of a traditional discipline. With a simple MIDI setup and your Amiga, Jazz Through MIDI can set you on your way to becoming a better player. You can make all the mistakes and wild flights of fancy you want without the psychological weight that learning in public seems to impose. To accomplish this with live players, on the other hand, would be very expensive and difficult.

If you want to learn more about jazz and how to play it better, whether you're an old pro or just starting out, you owe it to yourself to check out Jazz Through MIDI. It's a concept whose time has finally—and gratefully—come.

•AC•

Jazz Through MIDI
Price: $45.95
New Sound Music
P.O. Box 37363
Oak Park, MI 48237
(313) 355-3643
Inquiry #250

Please write to
Rick Manasa
c/o Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869



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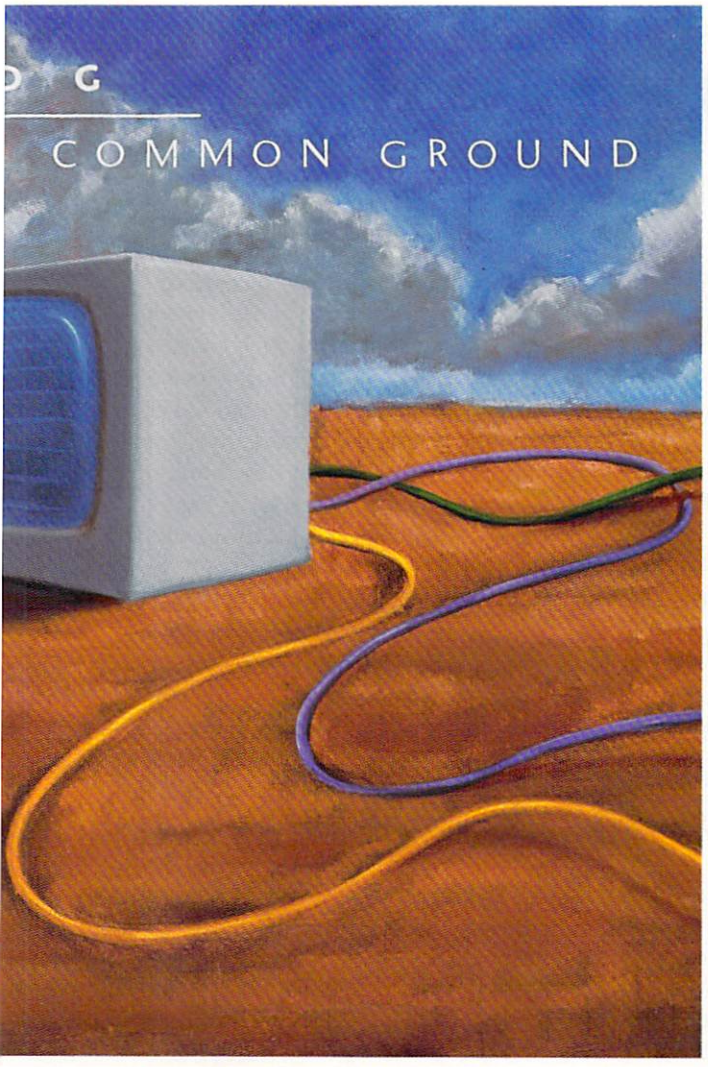
925 STEWART STREET MADISON, W



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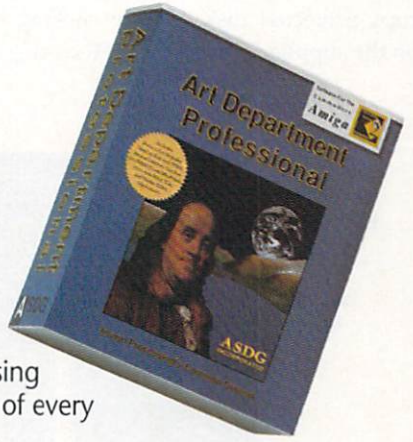

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EASYSCRIPT'S

LabelDex!

by Bill Frazier

LABELDEX! will accomplish a wide variety of commonly performed labeling tasks. The program is a full-featured mailing-label and disk-labeling database. With LabelDex! you can manage names, addresses, telephone numbers, and fax numbers. You may also manage disk libraries. LabelDex! will allow you to print address labels and disk labels in a large number of standard formats, or you can design custom label formats.

LabelDex! also prints regular mailing envelopes on printers capable of feeding envelopes, such as the Hewlett-Packard DeskJet and LaserJet printers. If your mailing address needs do not require the flexibility of a full-blown database, LabelDex! could well handle your mailing requirements.

LabelDex! is an easy-to-load program. It is contained on a single, non-copy-protected disk. Simply clicking on the supplied icon will start the program from a floppy disk. Equally simple is hard drive installation. While holding down the shift key click on the LabelDex! HD-Install icon, and click twice on your hard drive icon while continuing to hold down the shift key. All necessary LabelDex! programs and directories will then be transferred to the hard drive.

LabelDex! does take longer than normal to load, when compared to most other programs. A problem associated with the slow loading time is the fact that the familiar Amiga busy pointer changes back to the arrow pointer just three seconds after double clicking the LabelDex! icon. Since the program doesn't begin to run until 30 seconds later, impatient Amiga owners could interpret this slow response as a complete lockup of their machine. LabelDex! requires a minimum of 1MB of memory and can run efficiently from either a floppy disk drive or a hard drive. Printers supported by LabelDex! are any Hewlett-Packard LaserJet or compatible printer, Hewlett-Packard DeskJet printers, PostScript printers, or Epson-compatible printers. LabelDex! does not use the Workbench supplied printer drivers, but includes the drivers for the printers listed above in the program.

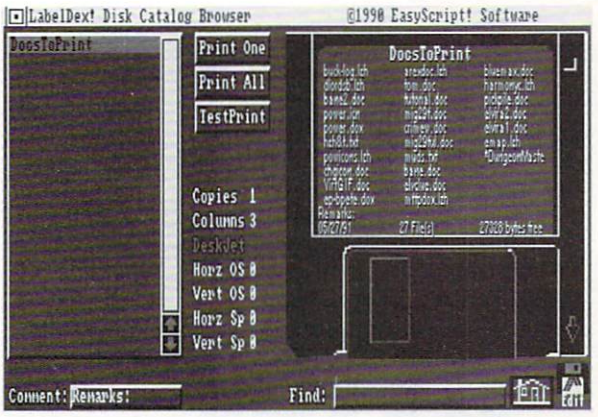
Once up and running, you are presented with the Mailing Database screen. In this screen you will find all the normal features Amiga users have come to expect, including the usual pull-down menus, screen gadgets, and buttons. The Mailing Database provides fields for the First and Last Names of the addressee, the Company name if applicable, the Street address, City, State, ZIP code, Phone number, and any comments related to the addressee. All fields can either be selected or deselected for printing. Any field not required is just left blank. All of the fields listed can be used as a sort index. This flexibility allows a great number of print selection possibilities, based on your label printing requirements.

Printing mailing labels with LabelDex! is a simple operation. First select the label, or range of labels you wish to print. Once this selection is made, select the label format from the many default formats built into the program. If the format required is not available, a custom format may be designed and saved for future use. Next, the number of copies to be printed of each label must be specified. Finally, click on the 'print all' button, and the labels will be printed.

A few problems were encountered when using the print options. First, as

Just type in the data and LabelDex! will print your address labels.

Import database files via ARexx.



Preview the label before you print.

in the case of initially loading the program, no feedback is given to let you know that the program is formatting and preparing to print. Again, depending on the number of records in the database, the program can be slow to respond. There is no indication to let you know that the program is running and preparing to print. It is also a good idea to print to a plain piece of paper, before printing to an expensive piece of sheet-fed labels, to confirm that the labels will be positioned properly. Although the documentation states that standard-sized sheet-fed labels, printed with a Hewlett-Packard printer, should print properly with no change to the supplied formats, tests demonstrate that some adjustment is required.

Besides printing labels, LabelDex! will also print directly to an envelope, if your printer is capable of feeding and printing envelopes. LabelDex! provides an additional option to enter and save Return Addresses, which are printed in the return address portion of the envelope. Using the print envelope option results in a completely addressed envelope. You just need a stamp and the envelope is ready to mail.

The Disk Cataloging section of LabelDex! automatically catalogs the files and directories contained on your non-copy-protected floppy disks. The program can be set to read just the main directories; main directories and root files; or main directories, their files, and the root files. All files read by the program can be edited or even deleted prior to saving them and printing the disk labels. Disk label printing is performed from the Disk Browse screen. The left portion of the screen presents a list of the names of all disks in the database. The right portion of the screen contains a slightly larger than life-size rendering of a floppy disk, picturing the label as it will be printed.

Information printed on the label consists of the disk name, the files and directories contained on the disk, any remarks that may have been entered, the date the disk was entered in the database, the number of files, and the number of free bytes left on the disk. The disk labels printed by LabelDex! are very readable and professional in appearance.

Additional features of LabelDex! are an ARexx interface with LabelDex!-specific commands and the ability to import *dBase III*-produced data files. One enhancement that would add more value to the program would be the ability to print the U.S. Postal Service Postnet Bar Code based on the ZIP code of the label being printed. With future postage deductions based on customer-applied bar codes, this enhancement would be a definite plus for all mailers.

On the negative side, a few items must be mentioned. First, the documentation was substandard. The documentation consisted of a small 25-page booklet with extremely small print. It was difficult to read the documentation at all. To complicate matters, the documentation was poorly organized and not indexed.

There was a Table of Contents, but there were only section numbers, not page numbers, referenced. Secondly, the Mailing Database screen provides fields to enter horizontal and vertical spacing adjustments. These are two-character fields. If more than two characters are entered by accident, there is no way to tell until you start your printing job. It would be less confusing if all entries that control printing and format were visible. Lastly, when using sheet-fed labels, there is no way to print a partial sheet, and then later print to that same sheet starting where you left off. This results in wasted labels.

LabelDex! is an easy-to-use mailing and disk catalog database. If your mailing needs are not complicated, and you are looking for a disk-labeling program, LabelDex! could be for you.

•AC•

LabelDex!
Price: $74.95
EasyScript
10006 Covington Dr.
Huntsville, AL 35803
(205) 881-6297
Inquiry #247

Please Write to:
Bill Frazier
c/o Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869

bug bytes

The latest in tips, workarounds and upgrades

by John Steiner

Electronic mail posted via CompuServe EMail from Kevin Davidson begins this month's bug list. Kevin writes with news about the Workbench 2.0 ROMs. He reports that Workbench 2.0 ROMs are incompatible with the ROMs in the A2630 and A2620 boards, 68030 and 68020 accelerators respectively. The only exception to this is the latest (Revision 6) accelerator cards. His source is an order form from Commodore that provided the information and allows registered developers to order new accelerator ROMs.

Kevin also reported that an update for SuperBase Professional 4 was just about ready to ship. He didn't have any more details than that at this time. I will have update information available next month. If you are in a hurry, you can contact Precision for the details.

product: MaxiPlan Plus 2.0
re: Upgrades and support for users of MaxiPlan, MaxiPlan III, and PlanIt
source: Gold Disk spokesperson.

In this month's mailbag I received a letter from KA Ferguson of Queanbeyan, Australia, with a couple of questions about MaxiPlan Plus 2.0 from The Disc Company. He had some specific questions about MaxiPlan upgrades, as he has a copy of PlanIt version 3.0, one of MaxiPlan's many spin-off versions. I called the technical support line at The Disc Company and the man who answered the phone spent some time explaining the history of MaxiPlan, and their role in the continuing saga. This column has carried many complaints about poor technical support from the various companies who either developed or licensed the various reincarnations of MaxiPlan. On the condition that I not reveal his name, the technical support operator provided the following information.

MaxiPlan Plus version 2.0 was recently licensed to The Disc Company, who is responsible for all technical support for this specific version. They are not responsible for, nor can they provide any support for any other versions of the program. Purchasers of those other versions must look to the original distributors for support on those products. Though the Disc Company is not obligated by any contractual arrangement, they have offered purchasers of MaxiPlan or PlanIt an upgrade to MaxiPlan Plus 2.0 for $50 and the original program disk. Owners of MaxiPlan III may also order MaxiPlan Plus 2.0; however, MaxiPlan III is technically a more full-featured product. MaxiPlan III is no longer supported at this time, though the anonymous source mentioned that The Disc Company might license the product in the future. MaxiPlan III generated the most letters from Bug Bytes readers, and versions below 3.6 were decidedly buggy. Version 3.6 is relatively stable, according to this spokesperson, but suffers from being an orphan at this point.

Concerning MaxiPlan Plus 2.0 specifically, the most current version 2.4 features built-in Lotus 1-2-3 file import, several bug fixes, and Workbench 2.0 compatibility. While I certainly wouldn't tell anyone else what to do, with all deference to The Disc Company, I don't plan to upgrade my PlanIt to MaxiPlan Plus 2.0. The program's checkered ancestry, intermittent to nonexistent technical support, and expensive upgrade path led me to purchase Gold Disk's Advantage some time ago. While it is not perfect, that's the one I use when I must use an Amiga for my spreadsheet work. Most of the time, however, I use Quattro Pro on a PC clone that is available to me. There is nothing in the Amiga market that has even half the capability of that program. One of my few continuing disappointments with the Amiga is the lack of a serious and powerful spreadsheet applications such as Quattro or Excel.

The Disc Company
11022 Santa Monica Blvd,
Suite 440
Los Angeles, CA 90025
(213) 478-6767

product: CanDo v1.021
re: bug when running with Workbench 2.01
source: reader mail

Turning from Australia to Tubize, Belgium, Dominique Dutoit writes regarding the program CanDo. He reports that CanDo version 1.021 on his A3000 25/40 (2MB chip RAM, 2MB fast RAM) with Workbench 2.01 has a bug. He commented that at the time of his writing, Workbench 2.02 is not even available in Europe. In any case, he reports that the decks and the utilities coming with the package run slowly and crash regularly. When he tries to run CanDo, the startup window fills with trash characters and the system crashes. Under A3000 Workbench 1.3.2, he reports that the utilities run correctly, but the decks always crash. I contacted Jim O'Flaherty of INOVATronics technical support. He was very helpful, and told me to tell Mr. Dutoit that all he needs to do is upgrade his software. CanDo versions prior to 1.022 are not stable in the Amiga 3000 environment. Mr. O'Flaherty reported that version 1.5, which has many new features and also works properly under AmigaDOS 2.0, has just been released. Upgrades are available to registered users. An upgrade to Version 1.5 is available for $40 plus shipping for registered owners only. For complete details on the upgrade, contact INOVATronics. They automatically send upgrade notices to people who send in their registration cards.

INOVATronics, Inc.
8499 Greenville Ave. Suite 209B
Dallas, TX 75231
(214) 340-4991
FAX: (214) 340-8514

product: Image Finder
re: read/write errors when accessing fonts from certain programs
source: redaer mail

Ken Boi of Glendale Heights, IL, writes with a problem he was having with his hard disk and Zardoz Software's Image Finder program. He comments, "Recently I started getting hard-drive read/write errors when I accessed fonts from some programs (e.g. DeluxePaint). He eventually traced the problem back to Image Finder. He called Zardoz Software, and was told that they were aware of the problem, and would be fixing it in an upgrade that will be available soon. In the meantime, they told him to disable the automatic update/delete feature of the software. That will eliminate the problem. I called Zardoz Software and visited with Dorothy, the technical support representative, and she confirmed that anyone using Image Finder should disable the automatic update option. She also confirmed that the release of version 2.0 Image Finder will be available soon.

Zardoz Software
6114 La Salle Ave Suite 304
Oakland, CA 94116
(415) 339-6280
FAX: (415) 339-6862

product: AEHD high density drive
re: upgrades for 2.0 compatability
source: reader mail

In a previous issue of *Amazing Computing*, I wrote a review on the Applied Engineering high density drive. The drive, which I used on my Amiga 2000HD, worked nicely, and I was generally pleased with its performance. Since moving to my A3000, however, I found that the drive did not work properly on my version of Workbench 2.0. When I called their technical support line, the representative told me that they had modified the driver to function under Workbench 2.0, but that in the meantime, Commodore changed Workbench 2.0, and their new 2.0 driver no longer functioned properly. They told me that they would be working on the new driver, but would probably wait until Workbench 2.0 was in final version before attempting a final fix. While this was not the answer I wanted to hear, I did understand their position that the high density drive delves deeply into the operating system. Since system is technically still in a Beta state and subject to change, they might have to rework the driver many times. The drive is now connected to my A3000, and functions very nicely albeit expensively as a standard 880K Amiga floppy drive df2:.

I've been patiently waiting to hear of an upgrade at some point; however, I recently received a letter from Bob Carpenter of Aurora, IL. In a three-page letter, he detailed that when he bought his Amiga 3000, he purchased an AEHD high density drive. I don't have room here to go into the details, so let me present a three-paragraph version of his story. He had seen the AEHD work on an A2000, but never asked to see it run on the 3000. Of course, when he got the drive home it didn't work. After being promised a future driver upgrade, he decided to keep the drive. He received a version that worked on his 3000, but when a new Kickstart was shipped, the driver didn't work with it. This time when he called, he was informed that there would be no future upgrades, as Applied Engineering was leaving the Amiga market. Several times, Applied Engineering changed their mind as to whether or not there would ever be an upgraded driver shipped. He got a letter from Applied Engineering dated July 9 that was short and to the point. It is short enough that I can reproduce it here.

Dear Sir;
:
This is in reply to your call to tech support about Kickstart 2.0 compatibility with the AEHD drive. I must first apologize for the misinformation you were (and I was) given regarding new drive software. The situation is that there will be no new upgrades to the drive software since all product development has been stopped on the AEHD Amiga drive. At this point there is (sic) no options to offer you. Sorry for your inconvenience.

The letter was signed: *Frank, Tech Support.*

I called Applied Engineering and asked them if the Applied Engineering high density drive was still available. They told me it is currently being sold. When I asked about future compatibility of the drive when Workbench 2.0 was available on the entire Amiga line, she was not able to answer that question. She referred me to Steve Niekamp of Applied Engineering's technical support department. He confirmed that their management has decided to leave the Amiga market, but would continue providing support for products and software in their current state of development. They would not be developing any new Amiga products, and as inventory is depleted, no replacement products would be manufactured. When I asked about Workbench 2.0 compatibility, he confirmed that the current driver does not function in that capacity and that there were no plans to make it function at any time in the future. Essentially, this will make the drive obsolete as a high density unit as soon as the CPU it's attached to is converted to Workbench 2.0. What distresses me the most about this situation is that Applied Engineering is still continuing to market these drives to the Amiga community knowing that they will be obsolete in the future. If they were priced and sold as 880K drives, I would have no problem as the drive functions nicely in that capacity; however, under 2.0, it is not a high density drive.

Mr. Niekamp did not shut the door completely on further development. Though he said there are no plans for an upgrade at this time, enough complaints from the Amiga community, especially AEHD drive owners, may cause the management to change their mind. If you own an AEHD drive, you should write and let them know how you feel about this.

Mr. Niekamp was courteous, and I left my phone number and a FAX number with him so that he could solicit a response from their marketing management. As of this writing, I have received no further correspondence.

Applied Engineering
P.O. Box 5100
Carrollton, TX 75011
(214) 241-6060
FAX: (214) 241-1365

That's all for this month. If you have any workarounds or bugs to report, or if you know of any upgrades to commercial software, you may notify me by writing to:

John Steiner
c/o Amazing Computing
Box 869
Fall River, MA 02722-0869

...or leave EMail to 73075,1735 on CompuServe

•AC•

REVIEW

TTR'S Teacher's Toolkit

by Paul Larrivée

ARE YOU ONE of those teachers I know of who use a full-featured spreadsheet to calculate students' grades? You might just be using a grand inquisitorial wheel upon which to break the body of a tender butterfly. It's so cumbersome that it can prove to be ineffective.

Take for instance this situation: the administration in your school decrees mid-year that the final research paper for seniors must count 20% of the student's final grade, or that the grade for the summer reading program in your private school must count 15% of the student's first term grade. In these instances, I've known teachers to rush to their spreadsheets in panic—not all of them math teachers—trying to determine the formula, which has to be entered manually, to make this weighting factor count for all students. Sometimes heated discussions break out among spreadsheet users because not all spreadsheets use the same syntax in setting up formulas.

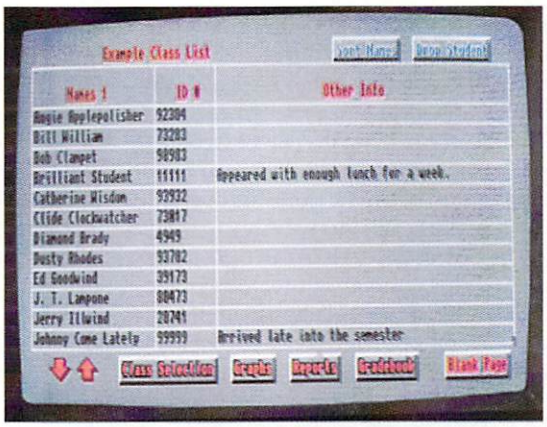
Review and Compare Grades on Graphs

There is where a program like Teacher's Toolkit in the hands of a classroom teacher proves its efficiency over a spreadsheet. With it you get the following aids: GRADEBOOK, LESSON PLANNER, CALENDAR, MEMO ED, and TELEMATE. These modules allow you to calculate grades; perform all sorts of conversions with ease; display individual test results, class averages, and selected students' performance on bar and line graphs; track excused and unexcused absences, and tardies; and print various types of reports; write lesson plans following prompts for all desired objectives and outcomes, with a PREVIEW mode that allows one to see previous lesson plans in an instant in order to provide continuity with similar material or simply to generate ideas; schedule appointments and track important dates and events; compose memos and jot down notes; record personal and business phone numbers, and even have the Amiga dial the number for you.

Let's take a look first at GRADEBOOK, the module with the greatest number of features, found on Disk 2 of the Toolkit set. Disk 1 holds the other modules with a menu that takes you to all of the other tools.

The tutorial presents a class of students, called "Example," with names and grades already typed in. The names of the classes appear listed in a window; you can scroll up and down through this list. Select a class by simply clicking on the name. Then, following the tutorial, click on the GRAPHS button. Two button clicks and you're in the GRAPHS screen, where you can select the graph you want to view by clicking on it. For instance, you can click on the Results box, which lights up to show it has been selected. At this point, a selector at the left shows a list of tests you can get results on. Click on any desired test, and then click on the VIEW GRAPH button. At this point you'll notice that scrolling by are the names of the students that the program is gathering information on in order to present the graph. Next you get a view of the graph.

On the longitudinal axis are the letter grades and on the vertical axis at the left is the number of students earning each grade. To get back to the GRAPHS selection screen, click on the RETURN button. Here you might want to track the progress of a single student. Click on the DIAGNOSTIC graph under "Selected Student." The selector at the left changes to show the names of the stu-



"Other Info" on the Student Info screen provides space for extra comments, such as noting students whose names differ from their parents', things to watch in a student, and other relevant information, which do not appear in any reports.

dents. In the "Example" class, the first name, "Angie Applepolisher" is highlighted, but, of course, you can scroll the list and highlight any name. Clicking on the VIEW GRAPH button will cause Teacher's Toolkit to go through all of the tests, retrieving the selected student's grades in order to present you with a graph.

Next come the features I find most informative. Across the bottom of the screen are boxes for displaying the student's—in the Tutorial example, Angie's—progress in the following categories: (H)omework, (C)lasswork, (Q)uizzes, and (T)ests. Additionally, there is a button for comparing Angie's progress with the rest of the class—a nice touch at teacher-parent conference time. The vertical scale at the left represents percent. The red boxes at the bottom represent days when Angie was absent. Clicking on one of these boxes will open up a window showing you the date of absence for that box and whether it was an excused or unexcused absence. "Has Angie been skipping school?"

Track Those Truants

If so, you may want to comment on this or on anything else. Just go to the REPORTS screen, and type your comments, which will be printed along with other selected information.

Back to the VIEW GRAPHS screen, you can selectively display any one or all of the categories, depending on the situation when holding a conference. Moreover, if you click on a line where it touches a percent mark, then it will open a window to display a description of the test and when it was given. In the case of unfortunate Angie, her high average slid precipitously at the time she adopted the practice of playing hooky.

Let's go back to the inconvenient situation suggested at the beginning. You find that you must, or simply wish to, have certain grades count as a percent of the total grade. This is where Toolkit glows. A button marked Type Average lets you choose either Category Weighted tests or Point Weighted tests. For instance, you want homework to count 10%; classwork or lab, 20%; quizzes, 30%, and tests, 40%. Just make sure your scheme adds up to 100%. If you change your mind as to category weights, simply re-enter your new plan. If the department head wants his or her favorite project to be weighted differently, don't let a departmental practice disconcert you. In practice, if not in spirit, it's easy enough to go with the consensus.

If you are using a point-weighted system as you go along, then you'll need to decide on a multiplier. If, for instance, you gave a 10-question quiz, you might want to give it a weight of 1. A student getting 6 correct would have a raw score of 6, have earned 6 points, or a 60% score. If a more important test also had 10 questions, but had a multiplier of 2, the student having 8 correct answers would have a raw score 8, or 16 points earned, and the percent would be 80. If he's the same student who had a raw score of 6 in the quiz, his overall average works out this way: 6 + 16 = 22 points out of a possible 10 + 20 = 30 points for an average of 73%. GRADEBOOK does all the calculations for you, and upon request will display raw scores, points earned, or averages.

Calculate your grades based on Category Weighted tests or Point Weighted tests, or both.

If you don't like the way the graph skews after viewing a particular grade for a class, or after viewing the current class average, you might want to reconsider your multipliers of certain items, or the percent weight you've given certain categories. A study of the available graphs should suggest the proper adjustments. What a great touch for those who are startled at the results of a given test, especially after delivering, just the day before, their favorite, Oscar-winning lecture!

Bear in mind that if you use test category weighted items, multipliers count only within their respective category. The overall percent for each category is weighed using the weighing factors that you've established. You can also have Toolkit take extra credit points into account. Until you award extra credits, it will be counted as zero with a multiplier of 1. The XTRA CREDIT feature cannot be category weighted as the category isn't known.

Let Toolkit track absences and tardies for you. Be sure to enter these as capital A or capital T, as the program looks for these letters. You may enter "eA" and "uA" for excused and unexcused absences if you want to record the difference. It is important, though, that actual scores precede any attendance information in the same cell.

If a student is to be excused from making up a test, leave the test cell blank for that student, as Toolkit will ignore a blank; that is, it will re-calculate the possible number of points for that student in arriving at an average. Otherwise, you may enter "0" before "uA" until the student takes the make-up exam.

Another convenient feature is the use of student ID numbers. One can show parents results of tests while preserving the confidentiality of other students. Also you might want to post in your classroom a list of student scores based only on ID numbers. Given the competitive nature of some students, however, not much time is wasted learning the other students' ID numbers, especially if they're sequential in an alphabetical class listing. "If 'Johnson' is 0030, then 'Johnsen' must be 0029."

Dropping a student from a class list or dropping a test is done with ease.

(continued on page 68)

REVIEW

Ready Robot Club Disk Magazine

by Timothy Duarte

SINCE MOST OF THE SCHOOLS in the United States are filled with Apple and IBM computers, the Amiga is overshadowed in the educational area. The percentage of schools equipped with Commodore Amigas is very small. Nonetheless, many companies are producing educational software packages for the Amiga. Many of these programs could be used at a school site, but can be used just as well at home. One unique program in the educational area is The Ready Robot Club Disk Magazine (RRCDM). If you aren't familiar with a disk-based magazine, then let me explain. A disk magazine is software program which is loaded and read on the computer. Other disk-based magazines exist for the Amiga, but they are general in scope. Ready Robot has an educational theme and is intended for kids in kindergarten to sixth grade. If you're looking to ignite your child's interest with the Amiga, this is a good program to begin with. Or, if your child is accustomed to the computer, Ready Robot Club Disk Magazine utilizes the Amiga in an educational sense. How so? Well, let's take a look.

Point and click on the "article" you want to read.

Skimming the Pages

The "issue" which I received for review was July 1991. RRCDM comes on a single 3.5" disk, which was packaged in a small, padded disk mailer. I inserted the disk into my Amiga 2000 and powered up. After a display of the title screen with credits, the reader has the choice of three menus, which act as a table of contents. Movement within the issue is controlled with the mouse; just point and click at the icon selection. The program loads the section into memory and displays the "pages," one at a time. In addition, Ready Robot will read the text presented on the page. Speech synthesis can be turned on or off and the speed can be increased or decreased. The speech is the usual robotic-style, but it appropriately fits with the title of the disk magazine. I grew tired of the speech option, but it's an ideal feature for youngsters who are learning to read.

Investigating the Articles

Each issue contains facts, folk stories, mind-stimulating puzzles, riddles, and games, and a number of activities and projects for kids. I decided to dive in. After clicking MENU1, I was presented with six choices of "articles." My first article chosen was "Celebrations: The Calendar," which listed important happenings in time and history which occurred during the month of July. Did you know that the ice cream cone was invented on July 23, 1904? These little tidbits may seem trivial, but remember the targeted audience. I then

Each screen, or page, within RRCDM is informative. There's plenty of information and general knowledge for youngsters to learn about.

checked out "Great People," which featured a short biography on Eli Whitney, inventor of the cotton gin and mass production. "Castles" consisted of a full-screen graphics slide show of three European castles. "Tricking the Old Woman" is an Indian folktale. Click on the Ready Robot icon and he'll read the text. Graphics and artwork were also displayed as the story went along to add a visual comprehension. "Betcha Can't" included an explanation of your sense of balance and shows the body's center of gravity in a series of simple "try this" experiments. "Parent's Corner" is an editorial intended for a parent or teacher who supervises the child.

Travelling Through Time

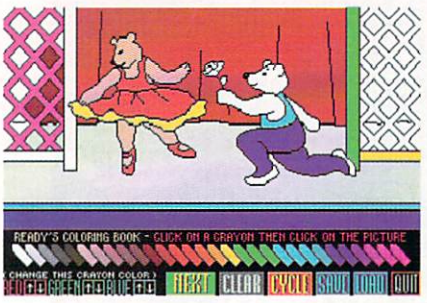
I jumped to MENU2 and went on "An Adventure with Ready Robot & the Club" in a time machine. We travelled back to the age of dinosaurs and became familiar with different species. There's some advanced material here; I've never heard of a Dilophosaurus or a Parasaurolophus. The well-known dinosaurs, such as the Brontosaurus and the Tyrannosaurus Rex are overlooked. Next, I clicked on an "Amazing Science" experiment, suitable for Independence Day, which showed you how to make Waterworks. It's a simple and safe experiment which uses food coloring and water for materials. RRCDM kindly suggests that Mom and Dad help out with the experiment as well. While the magazine shines in providing a variety of visual images, the Amiga's sound effects and musical abilities aren't really utilized, with the exception of Ready's voice. However, there is an impressive Digital Music "article" which plays a quality musical composition while displaying a show of moving icons and an array of colored lines.

Playing the Games

The last menu selection was entitled GAMES. Don't expect to see *Space Invaders* and other arcade-style games on this disk. This is understandable because it is an educational disk magazine. In a nutshell, the games are computer versions of popular thinking games. A memory game, slider puzzle, picture puzzle, word search, maze, and connect-the-dots are all included. Since most children love to color, the "Coloring book" will be a favorite. The child can click on a desired color and "fill" the ready-made black and white images with color. What a great introduction to computer paint programs for future graphic artists!

Finding Value

RRDCM has educational value that utilizes the Amiga as an excellent teaching tool. Overall, the content is light and informative. RRDCM won't drill math problems or vocabulary words. If you're looking for drill and practice programs, take a look at the educational software by MicroEd.



The coloring book is a paint program in disguise. There's even a color cycling feature for a special effect. Kids can save their artwork to disk and work on it another day.

The magazine provides positive values and encouragement for young learners. During my review, I didn't use the Amiga's keyboard once. Everything was controlled with the mouse. This is another plus for youngsters who may be intimidated by the Amiga keyboard, which probably appears to be very large from a child's perspective.

Another plus is that the program only requires a floppy drive and 512K of memory. Every Amiga computer has this system configuration, so no Amiga owner can be excluded. RRDCM will seem to be endless to your child because another disk with all-new material arrives once a month if you subscribe. Children can also participate by contributing stories or artwork. A certificate declaring membership into the club is also included upon subscribing. If you think your child may enjoy RRDCM and you're still unsure about subscribing, try a sample issue. Ready Robot will stimulate a young person's computer awareness and general knowledge. Older children will enjoy the program as well. Parents and Teachers beware! You may enjoy reading the "articles" and playing the games yourself.

•AC•

Ready Robot Club Disk Magazine
Price: $65.00 for 12 issues (1 year)
$36.00 for 6 issues
$10.00 for sample issue
Signs Etc. By D. Knox
P.O. Box 628
Carmichael, CA 95609
Information: (916) 944-4282
Inquiry #248

Please Write to:
Timothy Duarte
c/o Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869

MICROED'S

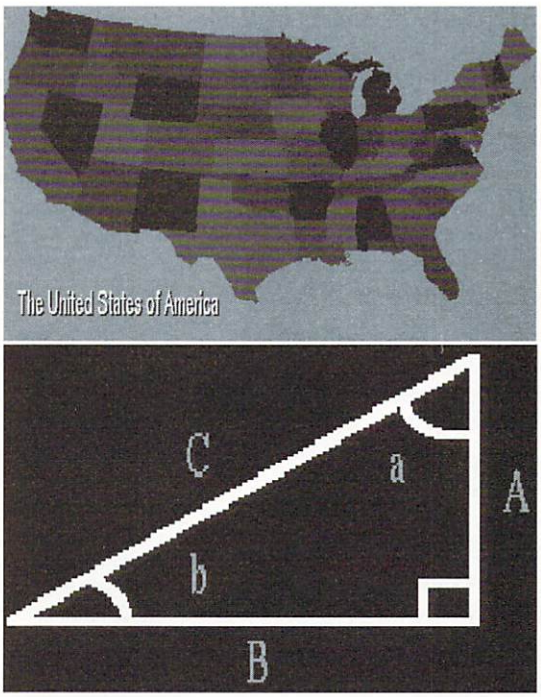
CLAS

Computerized Lesson Authoring System

by Paul Larrivée

DO YOU WISH YOU COULD PROGRAM your own software? If you're a parent, teacher, or just an individual who likes to help others learn, then there's a way.

From MicroED comes an update to CLAS, v2.0, their authoring system for parents and teachers. Packaged with three disks, Tutorial, Student, and Author, the program is easily transferred to your hard drive by creating an empty drawer and putting all the icons, including the one labelled "Icon," into it. The three disks are essentially the same, the only difference being that the Tutorial disk contains all the files while the other two have been allowed free space for saving your files.



In geography or geometry "problems," for instance, the student can register his response to a question by clicking on a state or on a labelled part of the triangle.

Saves Much Typing

CLAS uses a pseudo-BASIC language to accomplish its task. This saves you from using many commands to accomplish your purpose. For instance, you must begin all lessons with $COURSE on the first line with a description, and $LESSON on the second line with a label. Make certain that these commands are in the first column; otherwise, they may not be taken as a command and become part of the text. Then you can type in a lesson, or tutorial, much as you would use a word processor, entering $STYLE commands for italics, bold, underline, and colors, or a combination of these. It's also possible to enter formatting commands for left, right, or center justify by invoking the $JUSTIFY command.

Once you've presented your lesson, or tutorial, you can start asking your questions. Here you might want to use the $PAGE command, forcing a new page in order to avoid having the student merely search the lesson text for the answer.

Questions can take the form of fill-in, multiple choice, true-false, or clicking-on. This last approach would be useful in identifying parts or locations, as in a place geography lesson.

Once you've typed all your material for a particular lesson, you close the file with the $END command. Then save it where it becomes part of a drawer called "Courseware."

Gives the Student Some Hints

Sound simple enough? Hang on, for there is more. There is a conditional feature whereby the student is informed that he's not quite right and that he can try again. Then there is the $HINT command that permits leaving clues for each problem, or question. Each time the student presses the HELP key, he gets a new hint until eventually he's given the correct answer.

Do you want to develop rapid-response skill, as in speed calculations, among your students? Use the $TIMER (X) command whereby x = the number of seconds allowed to register the cor-

rect response. A countdown timer appears at the bottom of the screen. Imagine how you can keep re-adjusting this for particular students until they calculate at lightning speed! Any lesson can be viewed in program form and edited to match a student's progress.

Allows Some Guessing

The $FORMAT GUESS command allows some random letters to the answer to appear in the question blank. The blank might appear something like this: ph sy es s for the correct response, photosynthesis. The student need only to supply the missing letters. You may want to use this command at the beginning of new material, when the student may not be confident with the nomenclature.

If you have several questions to a particular problem, you might want to allow the computer to chose a limited number at random. The $PICK (x) command instructs the computer to choose whatever number of questions indicated by the value of x. In this way, the student can be presented different questions as he runs through the lesson several times.

Without making use of the advanced commands, I can present a simple example of what might be done:

```
$COURSE Junior-High Grammar
$LESSON Agreement and Tense
$PROBLEM

This history book with its many
illustrations <is> an ideal one for
your new course.
```

Anything typed between < > is not printed to the screen but provides CLAS with the correct answer.

```
$HINT Make it a form of the verb "to
be."
$HINT The subject of the sentence is
the word "book."
$HINT The subject is singular.

$PROBLEM
$TIMER (25)
(C)orrect or (I)ncorrect?
Each of us
$STYLE bold, italic, orange
is
$STYLE normal
to provide his own transportation to
Florida.<C>

$PAGE

$PROBLEM
$TIMER (25)

Much of what you do <B> on several
factor.

A. depend
B. depends

C. depending
D. to depend

$PROBLEM
$TIMER (25)

Bill went promptly to bed after he
<B> the book.

A. finished
B. had finished

C. finishes
D. finish

$HINT The book must be finished
before he goes to bed.
$HINT He cannot both go to bed and
read the book at the same time.
$END
```

Speaks Various Languages

Besides the use of text, CLAS allows you to import digitized pictures, or pictures from various paint programs, display them, conceal them, and superimpose text on them. This text can be presented in Spanish, French, or German, as well as English. You can add other languages as you wish to the LANGUAGE drawer.

Being a program for the Amiga, CLAS also supports the use of music, and of speech using the $SAY and $SPEECH commands. The S drawer has a file of translator exceptions for the $SAY command. The first line is the English word which $SAY mispronounces. The second line gives you a correction.

The $SPEECH command is followed by a string of Amiga phonemes, as in $SPEECH WEH9LXKAM TUW KLEE5S, "Welcome to CLAS." The program limits you to 15 $SPEECH commands per screen.

To personalize a course for your student, use the $OEM command to create a unique startup screen. Then use the $LOG <filename> command in the start-up file to instruct the program to use its built-in record-keeping facility. It records the student's name, current file, current course, current lesson, number of problems, number correct on first try, and the time.

There's even more when you progress to the Advanced CLAS programming stage. You can define variables and employ branching techniques so that responses are not judged simply as right or wrong but on broader criteria that you establish. Then the program can take alternative learning routes based on these evaluations.

The only difficulty, minor at that, which I faced initially with CLAS is its lack of printed documentation. Of course, help screens and other information can be sent to your printer by pressing a Function key. In this case, I've consoled myself by the fact that the addition of a manual would only add to the price of CLAS.

CLAS requires only 512K, detects when it's running on a PAL system, and has ARexx support.

With several tutorials beginning with "Getting Started" and on to "Basic," "Intermediate," and "Advanced," almost anyone can find himself writing sophisticated lessons in short time. I so enjoyed learning to use the program that I intend to start devising lessons and problems for a friend who has developed an interest in amateur radio. As a licensed amateur radio operator, I can assume the role of Elmer, an experienced ham assisting someone in getting his FCC license. I'm sure we'll both have fun along the way. •AC•

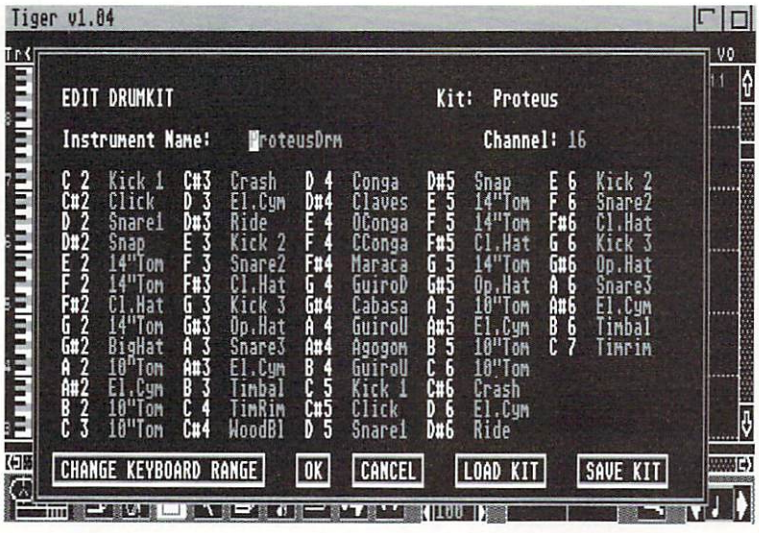
CLAS
Price: $129.95
MicroED
P.O. Box 24750
Edina, MN 55424
(612) 929-2242
Inquiry #251

Please Write to:
Paul Larrivée
c/o Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869

Dr. T's KCS 3.5

by Phil Saunders

THE LATEST VERSION of Dr. T's Keyboard Controlled Sequencer (KCS) has been released with a bunch of new features. I'll briefly cover the major parts of the program, but this review will emphasize the additions and changes in version 3.54. For those who want more details on KCS 3.0 features, consult my review in the September 1990 *Amazing Computing* (Volume 5, Number 9). While Dr. T's Keyboard Controlled Sequencer has been the premier Amiga MIDI sequencer since its introduction, periodic updates have added features and made the program more "Amigatized." KCS 3.54, the version reviewed here, is the third major update of the program since it was released for the Amiga.



KCS 3.5 allows entry of drum notes and instrument names.

KCS offers three basic modes of operation: track mode, open mode, and song mode. Track mode contains up to 48 full length tracks that run the length of the song. Open mode uses up to 128 sequences that can loop, run the length of the song, or even call other sequences. It is a tremendously powerful approach to song construction, though somewhat confusing to first-time users. Song-mode chains open mode sequences together to form songs. It is possible to move data from one mode to another in order to use the advantages of each mode. I often start a song by creating a short drum part in open mode, looping it to last the length of the song, and then converting the resulting sequence into a track. I can then record melodies or chords over the drum part in track mode.

KCS offers a wide variety of professional features. Synchronization options include MIDI sync (with Song Position Pointer), and SMPTE (using Dr. T's Phantom SMPTE interface). Unfortunately KCS does not support MIDI Time Code, a widely used standard for synchronizing MIDI sequencers to SMPTE. Dr. T's feels that its proprietary sync system takes up less MIDI bandwidth, allowing more accurate timing. KCS offers all the standard editing features and makes it easy to perform quantization, cut and paste, and other editing operations in an event list environment. For more detailed editing, KCS includes Level II editing and algorithmic composition functions. Level II editing features allow detailed editing of notes based on their pitch, velocity, position in beat or measure, or even what notes they follow. They allow quantization to a reference sequence, pitch mapping, and other advanced features. Level II also supports algorithmic generation of new material with complete user control of how the variations are generated. In sum, KCS allows you to perform just about any editing operation you would want.

One of the first features I noticed in KCS 3.5 was an omission: copy protection is gone! I've criticized Dr. T's in the past for relying on copy protection; it's good to see they've removed it from their software. It's a real relief not to worry about where I left the key disk when I want to use KCS. KCS users now have a responsibility not to give away "free" copies and kill sales.

While KCS 3.5 has some minor changes to the main program, most of the new features use the Multi-Program Environment (MPE). MPE was introduced in KCS 3.0 as a way for KCS to share data with other programs. KCS can use MPE to record the output from Dr. T's patch editors or to route data to the Copyist for music printing. KCS 3.0 also introduced AutoMix, a program that used graphic faders to control MIDI volume and pan positions on synthesizers. Changes made to the faders could be recorded into KCS, allowing automated mixing of MIDI sequences. KCS 3.5 includes two new modules for use with MPE: Tiger and QuickScore. Tiger is an interactive, realtime graphic editor. QuickScore displays and prints a song or sequence in standard music notation. Unlike AutoMix, Tiger and QuickScore require KCS and cannot be run as stand-alone programs. The modular approach lets the user load only the programs that are needed, making it easier to run KCS on a low memory system. 2MB of RAM are required to run KCS, QuickScore, and Tiger. Machines with less memory can run only one MPE module at a time. Dr. T's includes versions of regular KCS and Level II, so if you don't need Level II's editing features, you can use the regular version to save memory.

The most impressive feature of Tiger is that almost all of its editing features are available while the music is playing. Since Tiger scrolls notes as they play, you can see a wrong note, grab it, and correct it without stopping the music. Tiger normally plays all tracks during editing, allowing you to here the track you're editing in context of the song. You can solo or mute tracks in order to concentrate on a particular part. Tiger has key commands to play various sections of the edit track, but I found it easier to use the right mouse button or the space bar to start and stop play. It is also possible to select a few notes and play them or loop a section and play it repeatedly. The looping approach is good for tweaking a track that's basically correct. Simply set the magnification level so that you can see all the notes in the loop, start playing, and then edit each note until the track sounds right.

Tiger displays four kinds of information about each note: position, pitch, length, and velocity. Position and pitch are indicated by the note's location on the horizontal and vertical axes, respectively, and are also shown in a box on the lower part of the screen. Length is indicated by a bar representing the note, while velocity is shown by the length of the "stem" attached to the note. All four kinds of information can be easily altered using the icons located at the bottom of the screen. You click on the icon, and the cursor changes to indicate which editing option is active. You then click on a note, and drag in the appropriate direction to move the note or change its value. The system works well. I initially had problems knowing which icon performed which editing operation; the icon shapes are not particularly intuitive. I also had trouble selecting notes precisely with the different cursors (the active point seemed to change with each cursor). After a while I got used to the program and didn't have any trouble.

Once notes are selected, you can move them horizontally or vertically to change their location or pitch.

You can also select notes using a box tool, by pitch, or by highlighting whole areas of a track. You can select non-contiguous areas by holding down the shift key and selecting additional notes.

Once notes are selected, you can move them horizontally or vertically to change their location or pitch. You can also cut and paste, quantize (with or without "swing"), set velocities, or delete selected notes. I was a little disappointed because operations such as changing note length could not be performed on selected notes as a group in Tiger. There is also a "repeat time" feature that can be used to select notes separated by a user-definable amount of time. Notes can also be selected based on pitch (like C4) or pitch type (select all Cs). I would have liked to see more greatly sophisticated algorithmic selection capabilities, but if you really need these you can go into the Level II editor and perform them there.

New notes can be entered by drawing them with the mouse, using step-time entry, or recording them in real time. Mouse entry works by using default values for the note if you click the left button quickly. If you hold the button down, you can move the mouse and visually adjust the velocity and note length. A box at the bottom of the screen shows the current location and pitch of the mouse cursor, providing visual feedback. Tiger also allows graphic editing of controller data like pitch bend, MIDI volume, and aftertouch. This allows you to touch up a pitchbend that's a little ragged without rerecording it. Controller data can also be drawn or entered in real time using the mouse.

In addition to graphic editing features, Tiger also includes the ability to enter information about your synthesizer patches and drum machine note assignments. If you enter synthesizer and patch names for the 128 available program change assignments, Tiger will let you call up the various patches by name and will automatically rename the track with the patch name. This saves you from wondering what sound program 57 on your synthesizer actually plays. Once you define drum assignments (by telling Tiger that C#2 on channel 10 is actually a crash cymbal, for example), Tiger will display "Crash cymbal" in its note window at the bottom of the screen. Tiger comes with several pre-defined drum kits, and new ones can be entered and saved. One disappointment is that QuickScore does not use the information in the drum kits to correctly print drum parts. Instead, Dr. T's recommends resetting your drum machine's notes to match QuickScore's settings. Unfortunately, not all drum machines can change their assignments. You could use the pitch

(continued on page 68)

AC Disks

Source code and executable programs included for all articles printed in *Amazing Computing*.

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AC V5.6 and V5.7

Convergence: Part five of the Fractal series. Author: Paul Castonguay

Amiga Turtle Graphics: Computer graphics and programming with a LOGO-like graphics system. Author: Dylan MnNamee

C Notes: Doing linked list and doubly linked lists in C. Author: Stephen Kemp

Tree Traversal & Tree Search: Two common methods for traversing trees. Author: Forest W. Arnold

Exceptional Conduct: A quick response to user requests, achieved through efficient program logic. Author: Mark Cashman.

Getting to the Point: Custom Intuition pointers in AmigaBASIC. Author: Robert D'Asto

Crunchy Frog II: Adding windows and other odds and ends. Author: Jim Fiore

Synchronicity: Right and left brain lateralization. Author: John Iovine

C Notes From the C Group: Doubly linked lists revisited. Author: Stephen Kemp

Poor Man's Spreadsheet: A simple spreadsheet program that demonstrates manipulating arrays. Author: Gerry L. Penrose.

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AC V5.8, V5.9 and AC V5.10

Fully Utilizing the 68881 Math Coprocessor Part III: Timings and Turbo_Pixel Function. Author: Read Predmore.

C Notes From the C Group 5.8 & 5.10: Functions supporting doubly linked lists, and a program that will examine an archive file and remove any files that have been extracted. Author: Stephen Kemp

Time Out!: Accessing the Amiga's system timer device via Modula-2. Author: Mark Cashman

Stock-Portfolio: A program to organize and track investments, music libraries, mailing lists, etc. in AmigaBASIC. Author: G. L. Penrose.

CygCC: An ARexx programming tutorial. Author: Duncan Thomson.

Programming in C on a Floppy System: Begin to develop programs in C with just one megabyte of RAM. Author: Paul Miller.

Koch Flakes: Using the preprocessor to organize your programming. Author: Paul Castonguay

AudioIllusion: Experience an amazing audio illusion generated on the Amiga in Benchmark Modula-2. Author: Craig Zupke

Pictures: IFF pictures from past Amazing Computing issues.

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AC V5.11, V5.12 & V6.1

Keyboard Input In Assembly: Fourth in a series of Assembly 68000 programming tutorials. Author: Jeff Glatt.

A Shared Library for Matrix Manipulations: Creating a shared library can be easy. Author: Randy Finch.

C Notes From The C Group: A discussion on cryptography. Author: Stephen Kemp

ZoomBox: Attaches a zoom box to an Intuition window and allows the user to toggle the window's size and its position. Author: John Leonard

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AC V6.2 & V6.3

C Notes 6.2: A reminder program to display messages. Author: Stephen Kemp

More Ports For Your Amiga: Files to accompany article. Author: Jeff Lavin

Ultra Sonic Ranging System: BASIC Sonar Ranging program. Author: John Iovine

Writing Faster Assembly: Continuing the discussion of speeding up programs. Author: Martin F. Combs

C Notes 6.3: Working with functions. Author: Stephen Kemp

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AC V6.4 and V6.5

Blitz Basic: Here are some examples created wtih M.A.S.T.'s integrated BASIC environment. Author: Paul Castonguay

Creative And Time-Saving Techniques: Enchancing and fine-tuning images through definition. Part of the Fractal series. Author: Paul Castonguay.

Practal Modula-2 Buffered Disk I/O: Buffer file input and output to improve disk accessing speed. Author: Michal Todorovic.

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AC V6.6, V6.7, V6.8, & V6.9

Practicalities: Practical uses of Finch's previously documented Matrix.library. Author: Randy Finch

Selecting and Setting Gadgets in C: The third and final installment in the "Crunchy Frog" approach to programming. Author: Jim Fiore

C Notes6.6: A new skeletal program to "jump start" utility programs. Author Stephen Kemp

Fancy Numbers: This helps you save overhead by skipping the translator library. Author: Lynwood Cowan

C Notes6.7: Adding functions to handle file pattern processing. Author: Stephen Kemp

Message Logger: A time log that keeps track of when programs are run. Author Brian Zupke

Power Basic: Use a pre-processor to achieve definition replacement. Author Jonathan Horne

Puzzled Over ARexx: For the intermediate programmer, Merrill offers a solution to the puzzle of ARexx. Author: Merrill Callaway

THE AMIGA

Doing Big Things in a Small Place

By Thorwald Esbensen

Plaza is an isolated settlement resting on the bed of an old glacial lake near the center of North Dakota. This is wheat-growing land, and the town is barely a scratch on the prairie that sweeps the horizon.

Even the word *small* seems too *large* when applied to Plaza. Its business center consists of a hardware store, a grocery, and a cafe housed in a single building. An old grain elevator is the most imposing structure around. The nearest road of consequence is Rural Highway 23 that runs some distance away. Plaza folks go to and from Highway 23 over something they call the three-mile stretch.

"You don't arrive here accidentally," said Doug Kjos, who has lived in Plaza for seventeen years. "You have to want to come."

Many youngsters from larger, more affluent communities might count themselves lucky to come here for their formal education. For Plaza has a school that is on the cutting edge of computerized instruction. And the computers it is using so imaginatively are Amigas.

Doug, who teaches science at the school, is the person most responsible for this development. "In 1985," he said, "I purchased what I believe was the first Amiga 1000 in North Dakota."

He then started on the task of convincing the administration to spend some money on Amiga computers instead of buying only Apple computers.

Plaza, North Dakota—population 200; education trailblazer for the Commodore Amiga.

Fortunately, the school principal, the superintendent, and the board of education were all receptive to his recommendation. As Doug put it, "In a small school, it is often easier for the administration to hear what an individual teacher has to say." Said Doug, "We purchased two Amiga 500s with 1MB RAM and outrider drives, a Star 1000 Rainbow connected with an ABCD data switch box, and the IMG scanner. With a $400 grant for teacher inservice, I purchased *Mavis Beacon Typing, Where in the World...*, and *Where In The U.S. is Carmen Sandiego, Great States II, Sim City, Doug's Math Aquarium, Calculus, Balance of Power 1990,* and *Discover Chemistry-Geography-History.*

"This year we bought two more Amiga 500 systems, one with 3MB and a Supra hard drive. This system unlocks the potential of programs such as Professional Page 2.0 and AmigaVision, allowing them to be surrounded by a myriad of support programs and files. The Perfect Sound 3.0 digitizer has generated much laughter, excitement, and experimentation. Gross noises and searches for cryptic messages have lead to sophisticated music recording and editing. The Disney Animation Studio has turned first graders into cartoon animators, has provided a new way to study motion in physics, and has inspired dreams of cartoon greatness. VIP Professional and SuperPlan provided a mini course in spreadsheets.

"Computer Science students using MicroEd's Authoring System (CLAS) for a unit on authoring systems are thrilled by the quality of the programs they produce and by the ease with which this is accomplished. CLAS enables them to focus their energy on creating graphics and sound, gathering information and creating questions. AmigaVision has lead us into a new world of icon-oriented programming. It's a beautiful, coherent, menu-driven system.

"Because Modula-2 is replacing Pascal as the foundation language at the two largest universities in North Dakota—with others likely to follow—we added Modula-2 to the Computer Science course last year. We use the Benchmark Modula-2 system. It exposes our students to a professional development system and an EMACS type of editor. Near the end of a year of computer science, students become hungry for the organization of Modula-2 and can appreciate its speed and power.

"The favorite programming problems of students have revolved around a COMPUTER DATING/COMPATIBILITY program. Truly significant output has been generated!

Another popular program has been an OIL PATCH game designed around our local geology. Plaza is surrounded on three sides by oil wells producing more than one million barrels a year.

"One of our Amigas now links us to the outside world via SupraModem 2400 and A-TALK III. Libraries across the country are at our fingertips! All students, grades 7 through 12, have learned to get online, search libraries, capture information, and send for library materials. A toll-free call to our state library puts postage-paid books in our hands within days. We've discovered the awesome span of CompuServe and the thrill of linking computers with NASA, other federal departments, universities, and special interest groups.

"As adviser for our school annual, we now use Professional Page 2.0, DeluxePaint III, DigiPaint 3, Excellence 2.0, the IMG scanner and the 3MB machine for the annual. We get near-laser quality from a $200 dot-matrix printer. I've written a chemistry program which covers most of high school chemistry, and an even more ambitious program for high school biology which fills an entire disk with programming and data, and half of another with drawings. Other, smaller programs include a real time solar system simulator, physics, oil exploration, and graphing."

Doug uses Amigas in all science classes, both to run existing programs and to introduce programming. He teaches BASIC, PASCAL, MODULA-2, the Amiga/IBM/Macintosh operating systems, and various application programs.

The Amigas are also available in the study hall for any legitimate educational purpose and, following regular school hours, are employed in connection with flying, racing, city

planning, sports, music, and anything else the user wishes to do. The demand for the Amigas is so great that they are almost never idle. Understandably, the Amigas are making believers out of heretofore doubting Thomases. Doug described an initial computer inservice session he held for teachers:

"They could hardly believe their eyes and ears. They had no idea that a computer was capable of such things. A teacher who had purchased an Apple IIgs wanted his money back. With that three-hour session we just scratched the surface. But teachers were already laying plans to write music, bring their classes in for art, write papers, make family Christmas cards, teach classes, and buy an Amiga of their own."

Because the Amiga is so versatile and easy to use, it inspires creativity. One charming example is a takeoff on Carmen Sandiego. This program for Plaza students is called DAKOTA GHOSTS. It was written in Doug's computer class and features well-known, deceased North Dakotans who have suddenly re-appeared. The job of the student player is to identify these individuals, discover where they now are in our present day and age, then finally return them to their respective times and places.

As you can imagine, the Apples that remain at Plaza are no match for this kind of competition.

"Using our A-MAX emulator," said Doug, "we took a look at the best Macintosh programs. Before the hour was out, my students were yawning and wanted to get back to the Amiga."

It is simply no contest. The Amiga has already won hands down. Indeed, said Doug, the devotion to the Amiga is now so fierce that "an audience gathers behind all users,

Above: Plaza students working with their Amigas.
Left: Teacher Doug Kjos helps a student with a programming problem.

everyone wants one at home, while Apples get little respect or no attention at all."

I like the following anecdote:

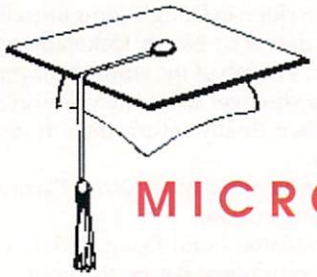
Last year, a basketball game was in the offing. Plaza's music students belong to another school band that doesn't play at Plaza's games. So Doug's principal asked him if he could get one of the Amigas to furnish the music. Doug wrote a version of "On Wisconsin" and a few other things just for the occasion.

As I complete this article I am making this entry in my record book: Plaza, North Dakota—population 200; educational trailblazer for the Commodore Amiga.

Author Tory Esbensen is the president of MicroEd, an educational software company. Readers who have heard about places where the Amiga is being used for educational purposes are invited to contact Tory.

•AC•

Please write
Tory Esbensen
c/o MicroEd
P.O. Box 24750
Edina, MN 55424
(612) 929-2242
Inquiry #246



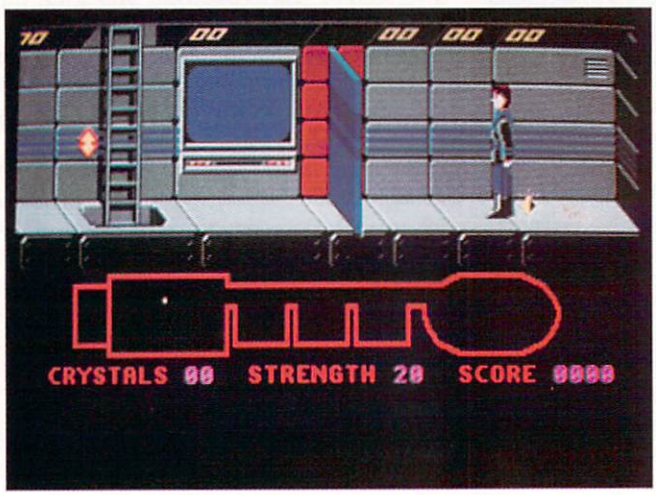
MICROILLUSIONS' Discovery

by Kim Schaffer

WHEN SOMEONE SAYS that a program is educational, you can often bet that it's not a polished effort. There are a few exceptions to that rule. One exception is Discovery. MicroIllusions distributes Discovery, a software package that proves that it doesn't have to be second rate to be educational. Discovery combines excellent graphics and smooth animation with soothing sounds and some good brain stretchers.

You start by choosing one of four characters. Whichever the character, the game is the same. You are on a space transport ship that is carrying little creatures which like to zap you. In addition, someone has left 12 crystals scattered throughout the ship. Your job is to jump over those creatures, collect the crystals, and prepare the ship for takeoff. In order to maneuver through the ship, you have to climb up and down ladders, jump over open hatches and small alien animals and pass through the security doors. You have to perform feats of spelling or mathematics to pass through those doors.

Stay out of the way of those pesky critters, collect crystals, and pile up points by questing quizzes. Keep clear of the curious creatures or you will lose your strength. Answer those queries correctly and they push your skills, give you passage, and rack up points. Give the wrong answer and you will be shown the correct answer and given another chance to go somewhere else or answer a different question. One plus about this game is that you can finish it in a single sitting. Collect those crystals so you can you finish the game. After all 12 crystals have been found, head to the control room so you can blast off to your next mission. After you have completed your mission or been bitten by too many bugs, you can select a new character and a new ship and give yourself a new chance.



Answer math and spelling questions to pass from room to room and collect points.

Unfortunately the level of game play does not increase with the level of question difficulty. However, the game has no violence, no destruction of planets, or no killing of large or small alien life-forms. Frankly, this could take a little getting accustomed to and the player may lose interest if used to playing mostly action games. This game takes it easy, provides a good platform to do your best with plenty of feedback, and gives you a maze to explore. It may even help those eye-hand coordination skills. Stick with it a little while and you may find yourself firing up this game as a nice break from the rigors of Earth defense.

The game has a strong base in developing basic skills through the security door queries. The addition and subtraction quizzes are very rigid in their input format, especially in the lower levels. If you know that 9 + 8 = 17, it does you no good unless you enter the 7, carry the 1 and finally complete the 1 for 17. While this may seems the long way around, it gives the player a method of working difficult problems as well as a way to show errors. When an error is made it displays the correct answer by the side with the errors highlighted. It is, in short, a good study aid. Higher levels may give you the total and let you figure out what one of the numbers is.

Subtraction is similar, with all "borrows" marked on the screen if you

(continued on page 63)

APL And the Amiga

Methods That You Never Saw Before

by Henry T. Lippert, EdD

OK gang, enough of the pabulum and super-easy-to-understand (read: "friendly") stuff. Now is the time to give you the really tough items like all those things for "real" programmers.

What is it that this APL language can do that is so spectacular? What can APL on the Amiga do that cannot be done some other way? The answer is nothing. *Nothing!*!?? Right, remember APL deals with logic, groups of numbers that come in different shapes (scalars, vectors, and matrices), and mathematics, all old stuff. There is nothing that cannot already be done some other way. Miracles and new creations are not within the domain of APL, even when combined with our magical machine, the Amiga.

Note that the title of this article promises *methods*. These unique things that APL does have are the methods that can be used to drive your computer. These unique methods which you probably have never seen before are all procedures that Dr. Iverson built into the APL because they *were* being done—over and over and over. They were being written repeatedly by poor programmers who needed a more elegant way to express what it was that they were trying to accomplish.

Sorting is a good place to start. Whole books and entire professional lives have been devoted to sorting. The primitive operation for sorting from low to high is upgrade (⍋) and from high to low is downgrade (⍒). Let's see how this works:

```
      NUMBERS ← 7 8 6 5
      NUMBERS[ ⍋ NUMBERS]
5 6 7 8
```

As you can see in the second input line, the set of values at NUMBERS were indexed by whatever ended up inside the brackets. Ask APL to show what it is doing inside the brackets:

```
      ⍋NUMBERS
4 3 1 2
```

Can you discover through inspection what APL produces for the upgrade operation? The index numbers inside the brackets above were the *positions* of the numbers in the original vector for each number needed in the final sort. This new set is called the "sort vector." While looking at the sort vector and the original numbers, the sort vector [4 3 1 2] is read (from left to right) as follows: "The first number is in the fourth position, the second one is in the third position, the third one is in the first position, and the last one is in the second position." If we index the original numbers in the sort vector order, they are sorted.

```
      NUMBERS [ 4 3 1 2 ]
5 6 7 8
```

Downgrade (⍒) simply reverses the order and takes the largest first and successively smaller numbers in order.

In working with vectors of numbers, one often wants to select some of the numbers for some reason. The operation of compression (/) performs this task. Give to APL:

```
      1 0 0 1 1 1 0 1 / ⍳4 5 6 7 8 9 10 11
4 7 8 9 11
```

and you can see that the right argument was operated on by the vector of ones and zeros of the left argument. The result was those numbers in the right argument that were in the same position as the values of one in the logical vector. One could select values that satisfy a condition from any vector. Take some numbers:

```
      NUMBERS ← 2 7 5 9 4 1 0 8 11 3 6
```

and create a logical vector where the ones indicate those values that satisfy the condition that are then used in the compression operation, here, for selecting those values that are greater than 5:

```
      (NUMBERS > 5) / NUMBERS
7 9 8 11 6
```

Notice how easy it was to use APL to generate the vector of ones and zeros for the left argument:

```
      NUMBERS > 5
0 1 0 1 0 0 0 1 1 0 1
```

All the relational operations are available and produce logical (true = 1 and false = 0) results. While most other computer languages use the relational operations, they are usually only used in "IF statements" or in conditional branches.

While the slash is used for compression, the back slash (\) is used for expansion. Expansion inserts a zero when dealing with numbers and inserts a space with characters. Hmmm.... Characters? Oh yes, all of the non-mathematical functions in APL also handle characters as well as numbers. Try it:

```
      'E'≠'GEE WHIZ'
1 0 0 1 1 1 1 1
      ('E'≠'GEE WHIZ') / 'GEE WHIZ'
G WHIZ
```

Try expansion with numbers:

```
      1 0 1 1 \ 2 3 5
2 0 3 5
```

And with letters:

```
      1 0 1 0 1 0 1 0 1 \ 'SUPER'
S U P E R
```

OK, maybe it was sneaky to show all of a sudden that APL handles characters as well as numbers. Letters are character objects and can be dealt with by some of the non-numerical relational operations particularly = and ≠.

Probably the most powerful and most difficult of all the APL operations are the two that translate numbers back and forth between different number bases. The first one that we will consider is "representation" (sometimes called encode) with a symbol that looks similar to a capital T: (⊤) but with a shortened vertical member. It allows us to deal with yards, feet, and inches; days, hours, minutes, and seconds where the base changes from one place to the next. To answer the question "how many yards, feet, and inches are there in 120 inches?" enter:

```
      1760 3 12 ⊤ 120
3 1 0
```

and the answer is three yards, one foot, and no inches.

To convert 367,238 seconds into weeks, days, hours, minutes, and seconds, enter:

```
      7 24 60 60 ⊤367238
0 4 6 0 38
```

and APL replies with no weeks, four days, six hours, no minutes, and 38 seconds.

Have you ever tried to split a decimal from its whole number using other program languages? It is easy with this new APL operation.

```
      0 1 ⊤ 16.9
16 0.9
```

How about binary numbers, you say? Happy that you asked.

```
      2 2 2 2 2 ⊤ 13
0 1 1 0 1
```

Base value, often called "decode" is the operation APL uses to go the other way. It appears as a tack (⊥). To find the decimal value of the binary number 1 0 1 0 1 1 1 0:

```
      2 ⊥ 1 0 1 0 1 1 1 0
174
```

gives the answer, 174, quite easily. How many seconds are there in five hours, 16 minutes, and 45 seconds? No trouble at all:

```
      24 60 60 ⊥ 5 16 45
19005
```

seconds.

Let's try the British monetary system, OK?

```
      0 20 12 4 ⊥ 2 15 7 5
2673
```

For 2 pounds, 15 shillings, 7 pence, and 5 farthings you have a total of 2,673 farthings.

How about your hexadecimal (base 16) conversion needs? Let's try:

```
      16 ⊥ 2 1
33
```

If you asked yourself about doing the previous problem with HEX numbers that use the letters, good thinking. You are always encouraged to ask APL to try it:

```
      16 16 ⊥ 2 F
VALUE ERROR
      16 16 ⊥ 2 F
            ^
```

Of course, APL first looks for a variable named "F." Since there is none in our workspace, the expression cannot be evaluated numerically. We can solve this problem but not as shown above. Let us use APL to discover the way to do it.

Take a look (examine carefully) these statements:

```
      H ← '2A7'          ⍝Store 3 characters at H
      16 ⊥ -1 + '01234546789ABCDEF' ⍳ H
679
```

Because we have characters to work with as well as numbers, we can use this fact by solving the problem alphabetically! Well, that is probably stretching the point a little. Let's have APL show it one step at a time.

```
      '0123456789ABCDEF'⍳'2A7'
3 11 8
```

Recall, the dyadic iota gives the index of the right argument in the left. Since we gave a three-element vector of characters ('2A7') as a right argument, APL returned an index for each of the three. Next is an adjustment by adding a negative one since the HEX numbers begin with zero, not one. Next, APL considers the index numbers generated as base 16 numbers using the base value operation. This is such a neat and useful item to have around, let's write a program that is called "Hex to Decimal" for future use.

```
      ∇ R ← HEXTODEC X
[1]     R ← 16 ⊥ -1 + R ← '0123456789ABCDEF'⍳ X ∇
Let's try it a time or two.
      HEXTODEC '3F24A'
258634
      HEXTODEC 'A7'
167
      HEXTODEC 'FFF'
4095
```

If you are not familiar with hexadecimal numbers, these examples may not strike you as very helpful. Recall that this article is for the tough hombres who are looking for the real meat in APL. Next is the *pièce de resistance.*

Since the claim was made that APL is an array-oriented language, how good is it at matrix operations? Did you really need to ask? Want to extract the inverse of a matrix for performing statistical calculations? Here's how you would do it in APL using the "domino" (⌹):

```
      M ← 3 3 ⍴ 9 8 7 4 3 5 6 2 1
      ⌹M
 0.09333333333      0.08          0.2533333333
 0.3466666667       0.44          0.2266666667
 0.1333333333       0.4           0.0666666667
```

If you are not into inverses, perhaps you are into simultaneous linear equations. The domino can be used to solve sets of such equations.

For the equations:

```
X -  Y + 5Z = 4
3X - Y + 2Z = 2
     -2X    + 4Z = -2
            A ← 3 3 ⍴ 1  -1 5 3  -1 2  -2 0 4
            B ← 4 2  -2
            B ⌹ A
7  31  4
```

The values in matrix A are the coefficients of the variables X, Y, and Z in the three equations. The values in matrix B are the results of the three equations, expressed as a vector. The solution by using the matrix divide operation "domino" yields the values of X, Y, and Z as a three-element vector.

There is a full set of manipulative operations such as rotating and transposing matrices that are not difficult to use and it will not be necessary to go through them individually. We'll use them at times to perform transformations.

The "outer product" is a matrix manipulator of the general form: ∘ . f where the little circle called "jot" is used in combination with any primitive function f, separated by a dot (a period/decimal). To create a multiplication table, use the multiply primitive with vector arguments to indicate the size of the table. A table of 1's through 5's would be:

```
      (⍳5) ∘.×⍳5
 1  2  3  4  5
 2  4  6  8 10
 3  6  9 12 15
 4  8 12 16 20
 5 10 15 20 25
```

The next "real meaty" APL method is a generalized "inner product." If you know matrix algebra you will appreciate the power of this APL implementation. If not, you may become a fan of such mathematical procedures. Then again, maybe you won't! One of the most frequently computed outcomes of matrix algebra is what is called the "ordinary matrix product." It is the result of a planned multiplication of each element in a row of one matrix with each element in the column of the other matrix and then adding up all the products. When working with statistical calculations, matrix multiplication is one of the mainstays in the procedural bag of tricks. APL makes it easy.

Let us look at an example of the ordinary matrix product. The generalized form is f.f where each f represents any

dyadic scalar function. To compute the product of:

```
      3 2 ⍴⍳6
1 2
3 4
5 6
```

and the matrix:

```
      2 3 ⍴⍳6
1 2 3
4 5 6
```

the following is entered:

```
      (3 2 ⍴⍳6) +.× 2 3 ⍴⍳6
 9  12  15
19  26  33
29  40  51
```

is the answer. The 9 in the product position [1;1] came from multiplying the first row of the first matrix by the first column of the second, then adding the products (1 x 1 = 1, 2 x 4 = 8, then 1 + 8 = 9).

Now, it was said above that the inner product was "generalized." Take an example using the same general form only with different dyadic primitive functions:

```
      1 4 2  ^.= ⌽3 3 ⍴ 1 4 2 3 5 6 7 7 5
1 0 0
```

only this time with the logical AND (^) and equal (=). The result told us that the vector 1 4 2 (the left argument) is the first row of the matrix. Again, ask APL to show the operation as it develops the result:

```
      3 3 ⍴ 1 4 2 3 5 6 7 7 5    ⍝Reshape the matrix
1  4  2
3  5  6
7  7  5
      ⌽3 3 ⍴ 1 4 2 3 5 6 7 7 5   ⍝Transpose the matrix
1  3  7
4  5  7
2  6  5
```

Now, at this point, it is *not* easy to show the joint operation of the ^.= as both primitives are done in combination. If you try to see the EQUAL part of the operation or the AND operation by themselves, a RANK ERROR is produced as the three-element vector cannot be compared *element by element* as the two arguments are not conformable. The inner product handles this for us because the number of rows in the first matrix is equal to the number of columns in the second. Note that we had to use the transposed matrix using the neat little operator (⌽) in order to attain the conformability. Transposing simply flips the matrix on its diagonal axis.

Well, that is enough for all the tough guys. If there has not been sufficient meat you'll just have to go back to BASICS! Yeah, the pun was intended.

Next time the fun begins all over as we begin to explore the implementation on the Amiga. So far it has been pretty straight APL and not much Amiga. The APL package comes with a bunch of workspaces already filled with a whole host of user-defined functions that do windows, menus, buttons, colors, sound, and all the other things for which the Amiga is famous. You can program things that look really professional in nature with your APL and the Amiga. •AC•

Please Write to:
Henry T. Lippert
c/o Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869

DIVERSIONS

Universal Military Simulator

UMS II: Nations at War

by Jeff James

Seeking to improve upon the success of the first version of the *Universal Military Simulator (UMS)*, Intergalactic Development and MicroProse have revamped the original to create the *Universal Military Simulator II: Nations at War (UMS2)*.

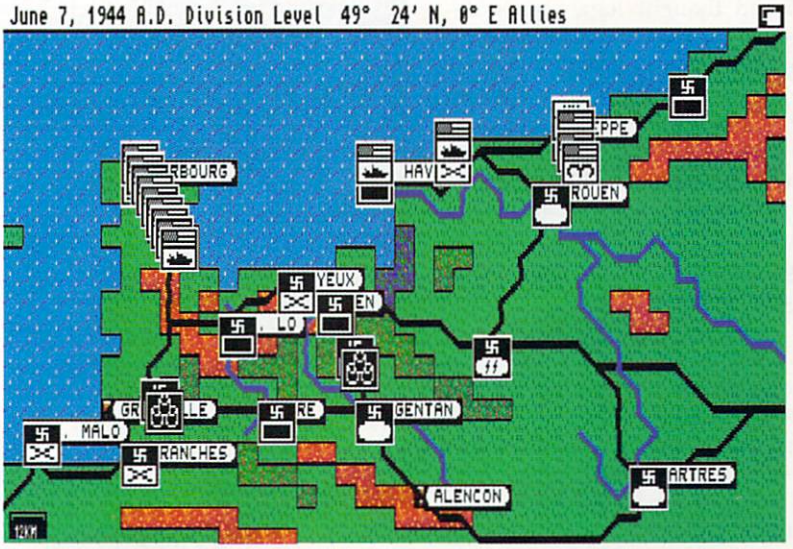
The *UMS2* package includes four diskettes, a registration card and a robust manual. *UMS2* lacks any sort of copy protection, and an included icon-driven hard drive installation script makes it a snap to transfer *UMS2* to your hard drive. The box claims that *UMS2* is for "Amiga 500/1000/2000 only," while the manual explains that it will work on any Amiga, including the A3000. Other than a lock-up, caused by a disagreement between *UMS2*'s music player and AmigaDOS 2.0, the game ran fine on my A3000. A spokesperson at Intergalactic Development informed me that a version of the music player compatible with AmigaDOS 2.0 is in the works.

UMS2 includes three scenarios taken directly from the most memorable pages of military history: the conquests of Alexander the Great, Napoleon's 1805 Campaign, and D-Day, the 1944 amphibious assault on Nazi-occupied Europe. Each of these scenarios are huge, involving large numbers of units over vast expanses of territory. Handling such large conflicts seems to be *UMS2*'s forte. The literature on the box claims that *UMS2* allows up to 50 players to wage war with a maximum of 127 nations and 525 provinces in one scenario. Players can skirmish with up to 32,000 total military units consisting of up to 40 different unit types. The best example of *UMS2*'s size is the included Alexander scenario, which pits 17 human and computer players against one another.

UMS2 also offers the unique ability to actually alter the way the computer resolves conflicts. By accessing a program option called the master control panel (MCP), players can actually alter the formulae that the computer uses to resolve nearly every action the players take in the game. Modifiers applying to movement, combat, weather, morale, experience, technological level, and other factors can be altered simply by accessing the MCP.

In addition, *UMS2* lets players set the personalities of computer opponents by allowing them to access and change the computer's artificial intelligence routines. Here, players can set the computer player's propensity to wage an offensive or a defensive war, set diplomacy, his or her penchant to wage war on sea or land, how he or she will divide its forces, and whether he or she will lean towards production of factories and ports, or of tanks and planes. Even the overall strategic posture of the computer opponent can be modified.

Wargamers will enjoy the enormous nature of each of the three scenarios, but it puzzles me why MicroProse deigned to include only a few small, rudimentary scenarios to show players the ropes before tackling the bigger, more involved scenarios. As it stands, players are thrown into three of the largest military operations in history with absolutely no training at all.



With all of *UMS2*'s capabilities, it sounds as if it would be a snap to create your own scenarios from scratch. Unfortunately, *UMS2* doesn't offer the ability to edit existing scenarios or create new ones. Changing the values in the MCP or playing a different country can add some variety to the included scenarios, but they soon become tedious. Microplay is promising a "planet editor" which will allow the creation and modification of scenarios, units, armies, and entire planets for your gaming enjoyment. Microplay also claims that the planet editor will even allow creation of bizarre fantasy scenarios, such as pitting Patton's 12th Army against the Roman Empire. Scenario disks are also forthcoming, including one for the recently concluded Persian Gulf War.

UMS2 has an enormous amount of potential. If MicroProse could add the planet editor and a few tutorial scenarios with the basic set, I would heartily recommend it as the centerpiece of every Amiga wargamers software collection. Since the game is difficult to learn, *UMS2* won't entertain casually interested strategy gamers for long. As it stands, hardcore wargamers will love *UMS2* as is.

Basic Skills Games from SterlingWare

by J. Scott

SterlingWare is a student-based software company which offers educational and thought/logic games designed to run on the Commodore Amiga. SterlingWare is a growing and evolving group of high school students eager to learn all they can about computer science and associated careers. Idhan II, CrossPoker, and Dots are just three of the game titles this group has produced. All of SterlingWare's games are designed to be thought-provoking and fun at the same time.

Idhan II

Idhan II, the first of the three games reviewed, is based on the classic Hi-Q style game. You are faced with a cross-shaped board filled with marbles. You must jump the marbles around the board until you are left with only one. It's not as easy as it sounds. You may move in any direction but you can jump only one marble at a time and you must jump the marbles. The computer keeps time as you go. You may set the time limit up to five minutes. The game also keeps track of the high scores.

Idhan II uses the mouse for play. Point and click on the marble you wish to move, then point and click to its destination. This is a simple way to improve your powers of observation, ability to plan, and skills as a strategist—not to mention the fact that this is an addicting game.

CrossPoker

CrossPoker adds a definite challenge to playing poker. Choose cards from a deck specially "shuffled" by the Amiga. Place your cards on a 5 by 5 playing board. Try to deal yourself good hands. You must watch the board carefully, since your hands run both horizontally and vertically. Rack up points with each good hand and compete for the best score.

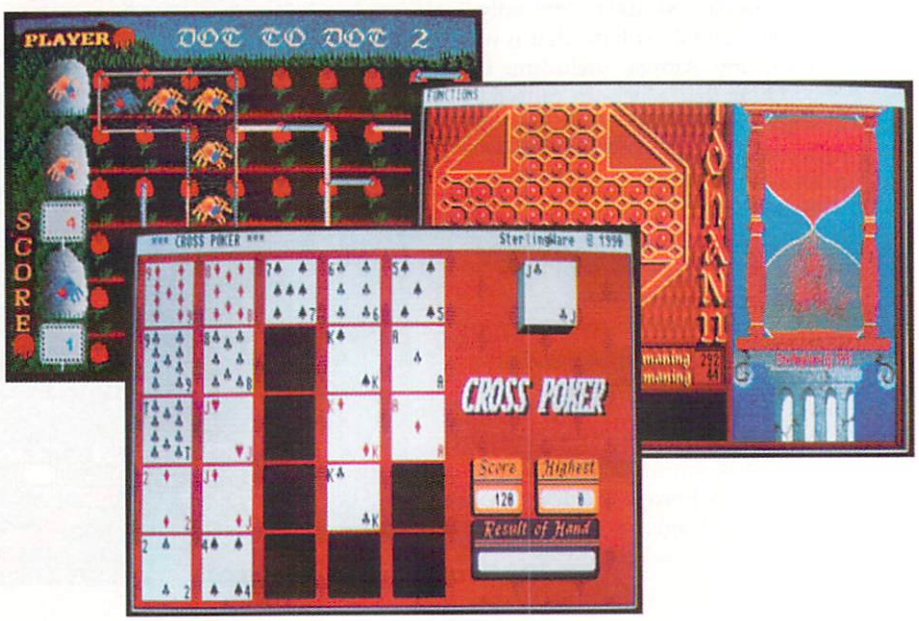
Again, this is a seemingly simple game. Really, it challenges you to think. You have to keep track of which cards you've placed and where you've placed them. You have to use strategy and careful planning. This game improves the player's hand-eye coordination and powers of observation. Memory is tested and challenged. This would be an excellent tool for sharpening memory and observation skills. It's fun too! The computer keeps a record of the highest score. A menu option allows you to check the values of each possible "scoring" hand. You are allowed up to five discards and given the opportunity to take your last move over in case you missed a good spot the first time. CrossPoker uses the mouse and has two menus. The first menu gives you the undo, point value, discard, restart, and quit options. The other menu lists the discard amounts.

Dots II

This was perhaps the most intriguing of the three SterlingWare games. Remember those place-mat games you'd play in a restaurant while waiting for your meal? This is it! Connect the dots and make a square. Each time you make a square, a spider, which represents you, makes a web in the captured place and marks it off as yours. The player with the most squares wins.

Easy, right? Not so fast. Dots II lets you choose who you will be playing against. You may play another human or you may play against one of five different levels of the computer. As each level gets higher, the computer gets smarter, much smarter. You have to be able to think quickly and react fast or you will certainly lose.

Point and click on flowers in a square, connecting the flowers with a line. Each time you close a square, one of your spiders places a web in it. The player with the most spiders wins. The interface is simple and the screen design seems aimed at a very young audience but, nonetheless, it is a fun and challenging game.



Each title in the SterlingWare collection is available for $24.99. Each program is well designed and runs flawlessly. SterlingWare offers a money-back guarantee on all their software. If any ordered title fails to live up to the users standards or needs, return the product and the purchase price will be refunded.

Railroad Tycoon

by L. S. Lichtmann

It's sad, but true, and not likely to change soon. These days, the majority of new games for the Amiga are ports of ones which first appeared for IBM PC compatibles. No hard-core Amiga gamer is delighted with this situation, but some games are worth waiting for. Microprose's Railroad Tycoon received rave reviews when it came out for the PC last year, and it's just been released for the Amiga. Don't be put off by the fact that it's "last year's software"; if you have any interest in strategy games at all, run out to your local Amiga dealer and buy it right now.

Microprose's products are consistently the most slickly produced games around. As usual, the manual is a masterpiece, beautifully organized and executed and almost worth the price of the game in itself for the information on railroad engineering, operations, and history it contains. Railroad Tycoon's off-disk copy protection is tied into the manual; upon starting the program you are required to correctly identify one of the locomotives used in the game from a picture in the manual. This is probably the most painless way of implementing such things. The game will install on a hard disk, and Microprose has included a utility program to perform the installation.

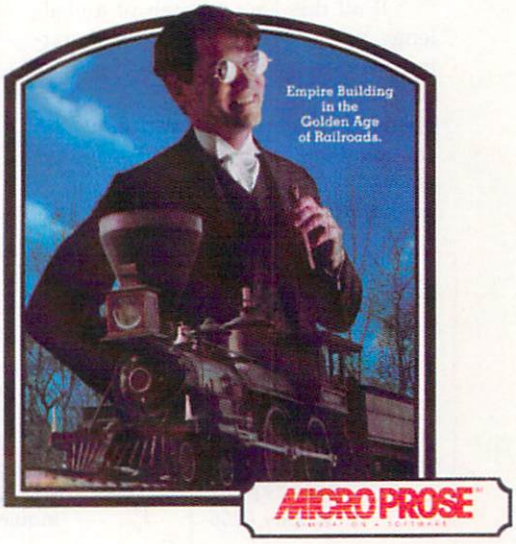
The objective of Railroad Tycoon is simplicity itself: to build a large railroad and operate it at an obscene profit. The collection of factors which must be dealt with in order to achieve this goal, however, is anything but simple.

A game of Railroad Tycoon takes place in one of four historical/geographical settings: the Eastern U.S., starting in 1830; Great Britain, 1828; the Western U.S., 1866; or Continental Europe, 1900. Each setting includes dozens of cities which provide the motive forces for the game. Railroads make money by carrying cargoes which are generated and demanded by cities. Cities are fixed at approximately sit their historical sites, but their relative importance, and the distribution of cargo-producing resources and industries are randomized for every new game, keeping play fresh.

The budding railroad magnate must get deeply involved in railroad operations. Capital must be raised, cities to be served must be selected, and track must be laid. Picking an initial pair of cities which will generate plenty of freight is crucial, and so is routing the rail line between them. Avoiding steep grades and sharp curves keeps trains moving at top speed and generates revenue quickly. Locomotives must be purchased, and the schedules and the car make-up of trains (the consist, in railroad jargon) must be determined.

The latter is important because Railroad Tycoon is governed by an elaborate economic model, varied slightly for each scenario. Cargos have specific identities: passengers, mail, coal, paper, grain, etc. Each type of cargo requires a specific type of freight car. Not all cargos are produced everywhere, and not all are demanded by every city. Production and demand have an internal consistency: cities with paper mills will demand wood as well as produce paper. Matching service to locations and rates of production and consumption is the first and chief challenge of the game.

Railroad Tycoon is meant to model the development of a railroad over a substantial span of time. As the years go by, locomotives wear out and must be replaced, and new types offering economies of operation and improved performance become available. Econo-



mies expand, and patterns of production and demand shift, forcing changes in your railroad's operation and offering new opportunities. If you're doing well financially, you can shape the development of the area you serve by investing your money in industry. Clever selection of industries to build can help your railroad's freight service prosper. Building a steel mill in the right place can produce both a demand for coal and a supply of steel to be shipped to a seaport for export.

If all this isn't enough of a challenge, your railroad will not be operating in a vacuum. Up to three computer-controlled competitors are present, each operated by a president with a historical name and a distinctive "personality." Competitors can shut you out of potential markets (each city can ultimately be served by only one railroad), and strip you of ones you already serve by engaging in rate wars. They can buy and sell your stock, complicating your attempts to raise capital, or even acquire controlling interest in your railroad, terminating the game by forcing you into an early retirement. Your only security lies in the Rail Baron's Golden Rule: Do unto others as they would do unto you, only do it first!

This brief description doesn't exhaust the possibilities of the game. Only glances at railroad finance and route engineering have been provided, and the whole areas of priority shipments, signals, and station improvements have been skipped. Fortunately for the beginner, Microprose has provided complexity settings. The economic model can be streamlined and the possibility of train collisions bypassed while learning the mechanics of the game. The overall difficulty can be adjusted to one of four levels by changing how much revenue is generated by delivery of freight. Finally, competition can be toggled from "friendly" to "cutthroat"; friendly competitors will not start rate wars or try to manipulate your stock.

Supporting the game mechanics is a large variety of screens: four sets of maps at various scales and conveying various information, routing and train consist screens, station information screens, and financial reports. Although strategy games usually provide a lesser scope for fabulous graphics, the graphics in Railroad Tycoon are very good indeed. The large scale maps are particularly impressive, with the location of each resource indicated with its own realistic icon. Animations have been used sparingly but effectively to enliven the game. In keeping with its recent track record, Micrprose has also made excellent use of the Amiga's sound capabilities, from bells and whistles as trains arrive and depart to an opening theme which will get you pumped up for each session.

I have only a few minor quibbles with the game. The menu operation and mouse button usage are not Intuition-standard, which should have been changed when the game was ported. The limit on the number of stations (32) allowed a railroad seems rather low. Finally, computer opponents are allowed certain track configurations which are forbidden to the human player. This may be necessary for play balance, offsetting the human player's advantage in strategic thinking, but it's irritating to see "Cornelius Vanderbilt" put in a terminal with four-way junction when you can't. It makes me want to put the scum out of business every time. None of these things affects my opinion that Railroad Tycoon is a superb game.

I divide games into three categories: Shelf Kings, One-Week Wonders, and Hard-Disk Regulars. Railroad Tycoon is going to be a frequently-visited inhabitant of my hard drive for a long time to come. •AC•

Product Information

UMSII: Nations at War
Price: $59.95
MicroProse Software
180 LakeFront Drive
Hunt Valley, MD 21030
(301) 771-1151
Inquiry #256

SterlingWare
Price: $24.99 each
W.A.V.C
1608 Fifth Ave
Sterling, IL 61081
(815) 626-5810
Inquiry #253

Railroad Tycoon
Price: $59.95
MicroProse Software, Inc.
180 Lakefront Drive
Hunt Valley, MD 21030
(301) 771-1151
Inquiry #255

Stripping Layers Off Workbench

A Systematic Approach

by Jack Helser

Last October, in an article entitled "Stripping Layers off Workbench," Keith Cameron voiced a few frustrations shared by many of us with stock Amiga 500 systems, such as frequent disk swapping, and no room on the Workbench disk for other programs. Like Keith, I also used the trial-and-error approach to delete unneeded files from the Workbench disk, that is, until I had a few problems caused by deleting AmigaDOS commands which were used by the Startup-Sequence.

After one start-up failure too many, I resolved to come up with a more systematic approach to stripping the Workbench disk of unneeded files and still maintain the basic functionality of Workbench. Ideally, the process should not disable any Workbench pull-down menus, or require a revision of the Startup-Sequence because many of the commands launched during start-up improve system performance. The process used meets all these objectives and is relatively simple. All that must be done is to identify and keep the files used by Kickstart, Workbench, the scripts and icons, the files you need, and delete the remainder. If you are familiar with the CLI or Shell environments and AmigaDOS, the review and deletion process should take no more than an hour. If, however, the CLI/Shell environment and AmigaDOS are new to you, the process could take several hours because you will need to refer to your AmigaDOS manual to read about each command and option called by the system.

As a basis for this project, I used an Amiga 500, with Workbench version 1.3.2, an A501 memory expansion (1 MB total RAM), an external floppy disk drive, and an Epson compatible printer. The memory expansion, external floppy disk drive, and printer are not necessary to accomplish this project, but they are helpful. Although this article is geared toward a floppy-only Amiga 500 with Workbench 1.3.2, there does not appear to be any reason why this basic approach could not be adapted to other Amigas as well.

When undertaking this project, please observe the following guidelines. All commands are issued from the root directory. To change to the root directory, enter "CD DF0:" at the CLI/Shell prompt. Whenever instructions say to enter a command at the CLI/Shell prompt, type the command exactly as shown including spaces, omit the quotation marks, and press the return key to execute the command. It does not matter whether you use upper, lower or mixed case letters in the CLI/Shell environment since the commands are not case-sensitive. It may be necessary to enter the complete path name where the instructions say "<filename>", e.g., "DF0:s/DPAT". If you use the Shell on the Workbench 1.3.2 disk, you can take advantage of the Shell's command line history and editing capability. When you have similar or repetitive commands, use the up arrow to recall previous similar commands, and edit them as required by using the left and right arrows, and the delete or backspace keys. You can use a CLI to accomplish this project, but the CLI does not have the command line history capability of the Shell.

The most convenient way to identify those commands, devices, directories, handlers, libraries and

Mounted disks:

Unit	Size	Used	Free	Full	Errs	Status	Name	
DF0:	880K	1703	55	96%	0	Read Only	Workbench1.3	
DF1:	880K	457	1301	25%	0	Read/Write	ProjectWB	

Volumes available:

Workbench1.3 (Mounted)

ProjectWB (Mounted)

Figure 2. Comparison of Stock and Stripped Workbench Disks

Figure 1: Files required to maintain system functionality

```
rashcan(dir)
c(dir)
    AddBuffers  Assign  Binddrivers  Break  CD  Date
    Echo  EndCLI  Execute  Failat  FF  IconX
    List  LoadWB  Makedir  Mount  NewCLI  NewShell
    Path  Prompt  Resident  Run  SetClock  SetPatch
    Stack  Wait
Prefs(dir)
System(dir)
    CLI  DiskCopy  FastMemFirst  Format  SetMap
L(dir)
    Disk-Validator  Newcon-Handler  Ram-Handler
    Shell-Seg
devs(dir)
    clipboard.device  MountList  system-configuration
    keymaps(dir)
        usa1
s(dir)
    CLI-Startup  Shell-Startup  Startup-Sequence
    StartupII
fonts(dir)
libs(dir)
    diskfont.library  icon.library  info.library  version.library
Utilities(dir)
.info  Disk.info  Shell  Shell.info  Trashcan.info
Utilities.info
```

programs used by the system is to print the directory and highlight the names of the files that are used. (Make at least two copies of your original Workbench disk. Rename one of them to "ProjectWB" and use it to start up your Amiga.) Once Workbench is loaded, eject the ProjectWB disk and record the amount of available memory on the disk label for future reference. Reinsert the ProjectWB disk and open a CLI/Shell. At the CLI/Shell prompt, enter "delete s/DPAT s/PCD s/SPAT s/Startup-Sequence.HD". These scripts are not used during the start up of a floppy system and deleting them now will reduce the number of scripts that must be printed. Next, enter "dir > prt: opt a" to direct the output of the ProjectWB disk directory to the printer. When the directory has printed, advance the paper and at the prompt enter "copy s/#? prt:" to print the remaining scripts in the S(dir). Last, but not least, print the MountList by typing "copy Devs/MountList prt:". Close the CLI/Shell by entering "endcli" or "endshell".

If you do not have access to a printer, you can keep a record of files used by the scripts by marking the directory listing in the back of the AmigaDOS 1.3 Enhancer Software book. To view the scripts, use the More program in the Utilities drawer. The scripts you need to look at with the More program are devs/MountList, s/CLI-Startup, s/Shell-Startup, s/Startup-Sequence and s/StartupII.

The first step in determining which files are used by the system is to compare the scripts you printed line by line with the ProjectWB directory printout. For every file called by a script, highlight its name on the directory printout. For example, the first line of the CLI-Startup script is "Prompt %N>". If you are unfamiliar with the "Prompt" file, look it up in the AmigaDOS manual. The manual will tell you that "Prompt" is an AmigaDOS command in the C(dir), and the "%N>" is an optional argument that displays the number of the CLI followed by a ">". Locate the "Prompt" file on the directory printout and highlight it to indicate that it is used. Proceed to the next line on the script printout and highlight the directory printout to indicate each file that is used until you have gone through every line of the scripts. Refer to your AmigaDOS manual as often as necessary to help you distinguish between files and their optional arguments. Note: anything in a script that is to the right of a semi-colon (;) can be disregarded because it is not executable. Also, be sure to highlight the "Date" file in the C(dir). Although "Date" is not called directly by a script file, it is called by the "SetClock" command in the Startup-Sequence.

Next, highlight the ProjectWB disk icon by clicking once on it, and select Info from the Workbench pull-down menu to see the ProjectWB icon tools. Icon tools are listed in the default tool and tool types windows. The default tool for the ProjectWB disk icon is "Sys:System/DiskCopy". Locate the "DiskCopy" file on the directory printout and highlight it to indicate that it is used. Since some icons have multiple tools, you will need to click on the up and down arrows to the left of the icon tool types window to see them all. When you are done looking at an icon's tools, click on the Quit button to exit. Repeat this process for every icon on the ProjectWB disk.

Now that the files used by the icons and scripts have been identified, you need to determine which files are used by the Workbench pull-down menus and the Kickstart ROM. The best way to identify these is to read your AmigaDOS 1.3 Enhancer Software book. The files used by Workbench and Kickstart are in the Devs, L and Libs directories. Workbench also uses the Trashcan, and the DiskCopy and Format files. Please note that not all files in the Devs, L and Libs directories are required to maintain system functionality. Many of these files may be deleted depending on your system configuration and personal needs.

Finally, you should highlight those files you use when you are doing AmigaDOS operations in the CLI/Shell. Using a different colored highlighter for the files you want to keep will enable you to distinguish between them and the files

required by the system should you need to refer to your list later on. For my needs, I highlighted Delete, Ed, Info, etc., since I usually only use the CLI/Shell for disk/file maintenance. Other files such as Ask, EndSkip, etc., need to be retained if you use interactive scripts.

Deleted Files

C (dir). : Delete commands that are not highlighted. Of the 64 AmigaDOS commands in the C(dir), only 26 are used by the system.

Prefs (dir). Delete CopyPrefs, CopyPrefs.info, Pointer.info, Printer.info and Serial.info. To copy Preference settings to another disk, open a CLI/Shell and use the AmigaDOS Copy command to copy the Devs/System-Configuration file to the destination disk. The Pointer, Printer and Serial .info files are icons for the Pointer, Printer and Serial pages of the Preferences file. One icon for Preferences is sufficient. Option: If you seldom change your Preferences settings, you can delete . info, Preferences and Preferences.info as well, since the preference settings are actually stored in the Devs/System-Configuration file.

System (dir). : Delete .info, CLI.info, DiskCopy.info, FastMemFirst.info, FixFonts, FixFonts.info, Format.info, InitPrinter, InitPrinter.info, MergeMem, MergeMem.info, NoFastMem, NoFastMem.info. and SetMap.info. Icon (.info) files are not necessary for the CLI which is a less functional version of the Shell; DiskCopy and Format are accessible from the Workbench Duplicate and Initialize menus; and FastMemFirst and SetMap are executed from the Startup-Sequence. FixFonts is not necessary when all the disk-based fonts have been deleted. InitPrinter sends the Preference settings to the printer as escape codes after a change to Preferences. MergeMem is not required for a stock Amiga with 1 MB RAM or less and NoFastMem is useful only with older software that can not recognize more than 512KB of RAM. The .info file is not necessary when all program icon (.info) files have been deleted.

L (dir). : Delete Aux-Handler, FastFileSystem, Pipe-Handler and Speak-Handler. The Aux-Handler allows a remote terminal to control the Amiga through the serial port. FastFileSystem does not support floppies. The Pipe-Handler is used to transfer data from one file to another. To pass data between files, I use the clipboard.device via the copy and paste commands. The usefulness of the Speak-Handler does not justify the disk space it consumes. You can also delete the Port-Handler if you do not have any genlocks, MIDI devices, modems or printers connected to your Parallel or Serial ports.

Devs (dir). : Delete Narrator.Device and Ramdrive.device. The Narrator.device is used in conjunction with the Speak-Handler in the L (dir). The Ramdrive.device controls the recoverable ram disk RAD:. I prefer to write data to a disk over using RAD:. If you do not have anything connected to the parallel or serial ports, you can also delete the parallel.device, printer.device and serial.device.

Devs/Printers (dir). Delete Generic. Rationale: Use the correct printer driver from the Extras disk. If you do not have a printer, you can delete the Devs/Printers(dir) in its entirety.

Devs/Clipboards (dir). : Delete in its entirety. Startupll makes a Clipboards directory in the RAM: disk and assigns CLIPS: to RAM:Clipboards. The Clipboards directory on the Workbench disk is not necessary with the RAM: disk.

S (dir). : Delete DPAT, PCD, SPAT and Startup-Sequence.HD. Rationale: DPAT and SPAT search for filename patterns and create script files using the List lformat string option. PCD is a change directory command that remembers the previous directory. I find it just as easy to use CD and List as it is to use DPAT, PCD and SPAT. Startup-Sequence.HD is unnecessary for a floppy system.

T (dir). : Delete in it's entirety. Startupll makes a T(dir) (temporary) for scripts in the RAM: disk and assigns T: to RAM:T. The T(dir) on the Workbench disk is not necessary with the RAM: disk.

Fonts (dir). : Delete All files and sub-directories. Topaz 8 and 9 are the default fonts used by Workbench and the CLI/Shell. Both reside in the Kickstart ROM. To choose Topaz 9, set Preferences to the 60 column mode, or select the 80 column mode to use Topaz 8. If I need other fonts, I use my word processor or paint programs, which have a number of fonts.

Libs (dir). : Delete Translator.Library. Translator.library is used in conjunction with the Speak-Handler in the L (dir). You can also delete the mathtrans, mathieeedoubbas and mathieeedoubtrans libraries if you do not use any programs that draw on the math libraries. Caution: the Calculator program uses the mathtrans.library and most fractal/mandelbrot programs use one or more of the math libraries as well. Some spreadsheets and databases may also use them.

Empty (dir). : Delete in its entirety. Serves no apparent purpose. A directory with a drawer icon takes about four blocks (2K) of disk space.

Utilities (dir). : Delete all files. A real Calculator is easier to use and a spreadsheet is better for more extensive calculations. There are a number of clocks in the public domain that consume less disk space than Clock and Clockptr, and that are more reliable as well. The principle use of CMD would seem to be for creating text files. Since most word processors can save files in ASCII format and since the output of Dir, List and Type can be directed to a script file, CMD would appear to have little use except for saving formatting as printer escape codes. GraphicDump prints the frontmost Intuition window, but I have never had occasion to use it. A printer can be installed using the AmigaDOS copy command and by revising Preferences instead of using InstallPrinter. There are better and smaller text readers than More in the public domain. A word processor, Ed or MEMACS will perform the same service as NotePad. The CLI/Shell command "type > prt: <filename>" or "copy <filename> prt:" will take the place of PrintFiles.

Expansion (dir). : Delete in its entirety. Not required with a stock Amiga 500.

Root (dir). : Delete Empty.info, Expansion.info and System.info. Rationale: The Empty and Expansion directories were deleted. An icon for the System(dir) is no longer necessary because all the program icon (.info) files within the directory have been deleted. If you deleted Preferences, Prefs.info can be deleted as well.

To assist you with validating your review results, Figure 1 is a list of minimum files that must be kept to maintain system functionality.

Now that the files required by the system have been identified, as well as those you want to keep, it is time to delete the rest. To begin the deletion process, open a CLI/Shell from Workbench. If you have decided to delete any directories in their entirety, at the CLI/Shell prompt enter "delete <directoryname> all". I prefer to enter the directories I want to delete all at once by typing them in a string such as "delete Devs/Clipboards T Fonts Empty Utilities Expansion all". This string will delete the Clipboards, T, Empty, and Expansion directories in their entirety. The files within the Fonts and Utilities directories will be deleted as well; however, the system will echo "SYS:Fonts Not Deleted—object in use" and "SYS:Utilities Not Deleted—object in use". This means the Fonts and Utilities directory partitions were not deleted because they are called by the "Path" command in the Startup-Sequence. It is wise to keep them should you want to install or retain any fonts or store useful programs such as screen blankers, virus detectors, and mouse accelerators.

From here on, the process used to delete files will be the same as described by Keith Cameron in the *Amazing Computing* article. For those who have not read the article, I will briefly recap Keith's recommended deletion process with an update for AmigaDOS 1.3.2. First, at the CLI/Shell prompt

> After one start-up failure too many, I resolved to come up with a more systematic approach to stripping the Workbench.

enter "dir opt ai". The "ai" stands for "all interactive" and it will list all the files and directories on the ProjectWB disk, followed by a question mark to indicate the system is waiting for a command to proceed. The first item presented should be Trashcan(dir). If you have decided to delete the Trashcan, enter "delete" at the "Trashcan(dir) ?" prompt to get rid of it. If you want to retain the Trashcan, press return to bypass the Trashcan and proceed to the next file. When you delete a file, the screen will echo "Deleted" to confirm the action. The next item presented should be C(dir). At the "C(dir) ?" prompt, press return to continue. All the files in the C(dir) will be presented one at a time in the same order as the printed directory you made earlier. When you are prompted with a command you have not highlighted, just enter "delete" to get rid of it. To retain the highlighted commands, just press the return key. Continue in this manner until you have gone through the entire ProjectWB directory. As you near the end of the directory, you will be presented with a number of .info (icon) files. Delete the .info files for any files or directories you deleted such as Empty.info. When the system has returned you to the CLI/Shell prompt, enter "system/fixfonts" to update any .font files you may have retained.

To see how much disk space you now have available on your ProjectWB disk, enter "info" at the CLI/Shell prompt or close the CLI/Shell with an "endcli" or "endshell" command and look at the disk space thermometer on the left of the ProjectWB disk window. You will need to close and reopen

the ProjectWB window to make the Empty and Expansion icons disappear. When I completed this project, my disk was 43% full because I kept a number of AmigaDOS commands and I did not delete all of the optional files. By comparison, a stock Workbench1.3 disk is 96% full. If you kept only the minimum files identified in Figure 1, your ProjectWB disk could be as little as 25% full. See Figure 2 for a disk space comparison of the stock Workbench1.3 and ProjectWB disks.

You may have noticed that I deleted the Aux-, Pipe- and Speak-Handlers in the L(dir) but did not delete the lines "Mount Aux:", "Mount Pipe:" and "Mount Speak:" in the Startupll script. Deleting these lines is not necessary because the mount command does not load or read the handler during the mount process. Similarly, I did not delete the Shell-Startup script aliases for the DPAT and SPAT commands we deleted earlier. Alias assigns another name to a command string but does not load or read the command during the shell start-up process. If you were to use an alias or handler that was deleted, the system would simply echo an error message indicating the object could not be found or opened. The only apparent advantage in deleting these lines from the Startupll and Shell-Startup scripts is an increase of about 300 bytes available memory after start up.

The moment of truth comes when you restart with the stripped ProjectWB disk. If you kept the minimum files identified in Figure 1, and did not revise any of the scripts, the system should start up without problem and the amount of memory available should be nearly the same as the amount of available memory you recorded on the disk label when you began this project (within 50 bytes). If Workbench does not load during start up, there will be an error message in the start up CLI indicating which script command failed. Invariably, a start-up failure is caused by deleting a file that is used by a script. If this happens, you will need to copy whichever file is missing from a copy of the stock Workbench disk to the ProjectWB disk and restart. To copy the file you need, restart with a copy of the stock Workbench disk, open a CLI/Shell, enter "resident copy pure" to make the copy command resident, and copy the missing file to the RAM: disk by entering "copy <filename> RAM:". Remove the Workbench disk, insert the ProjectWB disk and enter "copy RAM:<filename> DF0:<filename>". When the file is done copying to the ProjectWB disk, restart to make sure there are no more missing files.

In closing, I would like thank Keith Cameron for his original article on stripping the Workbench disk. I would also like to echo Keith's recommendations to install a screen blanker, mouse accelerator and virus checker. Several are available in the public domain and they come with documentation files on disk to help you install them on your Workbench disk. If you can use the Copy, Ed and EndCLI/EndShell commands, you will have no trouble installing them. •AC•

Please write to
Jack Helser
c/o Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869

—Discovery continued from p. 50

want credit for the answer. Multiplication, division, and fractions are also covered. Word skills are provided through spelling of typical spelling words and geography names. The spelling quiz relies on the Amiga speech interpreter that I found very difficult to understand, especially for the easier words. This is unfortunate as you can spell the word you heard only to be shown that you didn't spell the right word. It also can unravel some confidence, making the game less fun.

Each category of problems has several different levels of difficulty. Though not stated on the packaging, the program appears to be aimed at seven-year-olds through high school. This is an extremely wide range for any educational tool, but the levels of difficulty extend the range of this program. For this level of gaming skill, however, less difficult levels could have been easily incorporated. A five-year-old could be well occupied if the lowest level of math skills did not run into double digits.

The game disk is not copy protected and will keep most players busy for a long time. Other modules are available through mail order including categories such as science, history, and, of course, trivia. While I have not tried these, it appears that they could easily be added if desired. Discovery can be loaded onto a hard disk, but after the initial screens the program does not seem to be slowed by the floppy disk. Overall, Discovery is a quality educational tool that entertains and can be useful for many years. •AC•

Discovery 2.0
Price: $39.95
MicroIllusions
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Kim Schaffer
c/o Amazing Computing
P.O. Box 869
Fall River, MA 02722-0869

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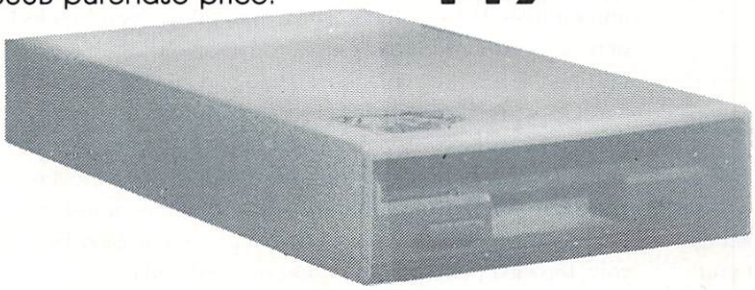

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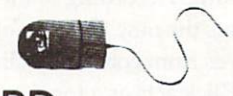

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NoClick v1.0

How many of you are tired of listening to your Amiga floppy drives clicking away? Well your're in luck—if you have 2.0 that is. NoClick puts and end to that irritating sound with a click of a button. When executed, NoClick immediately goes into action and removes the annoying clicking. According to the documention, NoClick "implements the new function of Trackdisk.device" to stop the drives from constently clicking when no disk is present. NoClick acts as a toggle switch. If you run the program again, NoClick will be "turned off" and the floppy drives will start to click again. This program is a must for any Amiga floppy drive listener. If you run into any problems or have ideas for new enhancements, the author includes his address in the documentation file.

NoClick v1.0 can be run from Workbench or CLI. It can be found on Fred Fish Disk #501. A patch is supplied for the Kickstart files for a permanent no-click for v1.3 and v2.0 of the OS. Author: Nic Wilson

Connex v4

The object of the game is to place four of your pieces in a row—either horizontal,vertical or diagonal_before your opponent. That is the usual directions of a similar game, Connect 4. Connex brings besides the gameplay of its prototype, a twist. You can try *not* to get four in a row. It's not as easy as it sounds.

Besides the two play formats, Connex brings with it three player options. You can sit back and watch the computer play itself, play against the computer, or play against another person. Hiting the F1 key will toggle among these three options. The F2 key allows you to select between getting four pieces in a row or avoiding this. Hitting the ESC key will abort game play.

Opponents are identified by either a blue or green piece. The game is played by each opponent taking a turn and selecting where his or her piece will fall in the seven rows which make up the board. Use either the mouse or keyboard to select the rows. When a piece is already in a row, the next piece placed in that row will fall on top, causing the pieces to pile one on top of the other. The first player to get four of his or her pieces in a row wins the game—unless, of course, you're playing *not* to get four in a row.

At the top of the screen, Connex has a pull-down menu with the following options: New Game, IQ Level, About, and Quit, each accomplishing what it says. IQ Level toggles between level 1 and 2.

Connex comes with a brief documentation file. Within the game is a more detailed description of gameplay and available options. The only complaint I have concerns the Quit option. Once Quit is selected or the ESC key is pressed, Connex does not automatically return you to the Workbench. Instead you must see a screen with information about ordering other programs. This wouldn't be annoying except that you see this screen at the beginning when first starting Connex. This is a very minor complaint considering the great job PC Solutions did with the graphics and the game overall.

Connex v4 can be run from the Workbench or CLI. It can be found on Fred Fish Disk #511 and is shareware.
Copyright: PC Solutions

by Aimée B. Abren

FlipIt 18

Another popular board game brought to the Amiga by PC Solutions is FlipIt, known also as the board game Othello. Like Connex, FlipIt comes with a small documentation file, but includes a more detailed description within the game. The function keys are used to select such items as New Game, IQ, Board size, and Grid patterns.

If you're not familiar with Othello, gameplay goes something like this. It is a two-person game, each having chosen a color from the two color-sided chips. The object of the game is to capture your opponents chips between your chips. This can be either vertical, horizontal, or diagonal. When you successfully capture your opponent's chip or chips, you then flip his chip or chips over to now become your color. As more chips are played, the game gets more interesting. A move is only legal if it can successfully flip over an opponent's chip.

When all possible moves have been played, and no more chips can be flipped, the game is over. The person with the most chips showing his color wins the game.

As you may have guessed, FlipIt also has the option of playing to see if you have the least amount of chips displayed. Now that's a real challenge.

PC Solutions offers an updated version of FlipIt if you register. They claim the updated version has extra IQ levels and more features, and it plays a stronger and faster game. This is described in the documentation file as well as in one of the start-up screens. Besides registering for FlipIt, PC Solutions offers different game packets, one of which includes Connex.

FlipIt v18 can be run from the CLI or Workbench. It can be found on Fred Fish Disk #512 and is shareware.
Copyright: PC Solutions

Spliner

Spliner is a screen blanker commodity for those who are fortunate enough to have version 2.0 of the OS. According to the documentation, Spliner came from Tom Rokicki's Mackie. Mackie is a utility program for the Amiga with two functions: a screen blanker and a hot-key manager. Mr. Vigna took the screen blanker portion and turned it into Spliner.

As you may have guessed, Spliner draws coloful splines across your screen. You can set the time when Spliner turns on, and you can turn on or off color cycling.

If you have 2.0, installing Spliner is as simple as dragging the icon into the WBStartup drawer.

Spliner can be found on 517. Authors: Tom Rokicki, and Sebastiano Vigna.

Updates from the latest Fred Fish Disks—#511 to #520

Connex v4.0, similar to Connect 4, can be found on Fred Fish Disk #511 and is an update to v3.8 on Fred Fish Disk #493. Author: Adrian Millett

DirWork v1.31, a directory utility, can be found on Fred Fisk Disk #511 and is an update to v1.30 on Fred Fish Disk #508. Author: Chris Hames

Less v1.4Z, a text file reader, can be found on Fred Fish Disk #511 and is an update to v1.3 on Fred Fish Disk #149. Author Ray Zarling

PCQ v1.2b, a self-compiling Pascal compiler, can be found on Fred Fish Disk #511 and is an update to v1.2a on Fred Fish Disk #503. The material found on #511 is only a partial update. You still need #503. Author: Patrick Quaid

Csh v5.15, an Amiga shell replacement, can be found on Fred Fish Disk #512 and is an update to v4.02 on Fred Fish Disk #458. Authors: U. Dominik Mueller, C. Borreo, S. Drew, and M. Dillon

DKBTrace v2.12, a raytrace program can be found on Fred Fish Disks #513 and #514 and is an update to v2.0 on Fred Fish Disk #397. Author: David Buck

NewList v5.0a, an alternate LIST command, can be found on Fred Fisk Disk #513 and is an update to v5.0 on Fred Fish disk #501. Author Phil Dietz

S220toISVX v1.4, sound sample converter, can be found on Fred Fish Disk #514 and is an update to v1.0 on Fred Fish Disk #286. Author: Dieter Bruns

CheckBook v2.0, a checkbook/budgeting program, can be found on Fred Fish Disk #515 and is an update to v.9 on Fred Fish Disk #425. Author: Jeffery R. Almasol

AmiBack v1.04, a demo of a backup utitlity, can be found on Fred Fish Disk #517 and is an update to v1.03 on Fred Fish Disk #493. Author: Moonlighter Software

AmiDock v1.3, similar to NeXT's Dock Facility, can be found on Fred Fish Disk #518 and is an update to v1.2.4 on Fred Fish Disk #474. Author Gary Knight

FifoLib v3.1, similar to PIPE:, can be found on Fred Fish Disk #519 and is an update to v2 on Fred Fish Disk #448. Author: Matt Dillon

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Please write to Aimée B. Abren
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—TOOLKIT
(continued from p. 40)

Just in case something goes wrong, you should use the BACKUP DISK feature to save all information to another disk, where the program will also place all the necessary files if you're using a new disk.

On to the other tools: the MemoEd Text Editor is a convenient, rapid-access solution for a simple text editor. Though the manual states that it is "not intended to replace word processors or high-powered programming editors," I've seen so-called note pads that were virtually featureless compared to this text editor. It sports "search and replace" functions, "save" and "save as" features, append capability, word wrap setting, line delete, and an undo command which rescues you from the results of using Clear and Delete too rashly. These features are selected by the pointer, but some of them can be accessed by hotkeys as a convenience.

Telemate tracks all those important phone numbers, keeping separate lists of personal and business numbers to keep information neat and uncluttered. Each listing has two fields for phone numbers. On your business list, you might have a voice line number and a fax number. On your personal list, you might maintain home and work numbers. To look up a number, select a search field and type a portion of a name or number. Press Return, and the program looks for a match. Continue hitting return until the right match is found. There's even an Info button that tells you the amount of memory available—chip and fast—as well as the current date and time.

Leads Lesson Planning Through Eight Steps

The other tool besides GRADEBOOK that is specifically pedagogical is the LESSON PLANNER, which leads you through eight steps in writing your plan. From "Objective" on to "Equipment" and "Motivation" and ending at "Review," you are sure to have the most professionally-crafted lesson plans in your building. If you use this tool faithfully to create each lesson you teach, you'll end up with a sizable book by summer vacation.

There are features here like REVIEW to look at previous lessons for inspiration and continuity. You may have forgotten that there is in the EQUIPMENT list a video tape series used previously that has just the tape you can use for this lesson. Use the REVIEW button and the LEFT ARROW and BIG DOWN ARROW to copy the equipment list from a previous lesson to the current lesson if the equipment is the same.

FORMAT allows you to set up an outline in indented form. Using dashes instead of Roman numerals to indicate subtopics, this is a form preferred by many lecturers. Up to four levels, or four dashes, are supported by the FORMAT button. Imagine the neat appearance of your lecture when it's printed! FORMAT is used also to re-format material copied from the review section so that all lines end at the appropriate point.

Toolkit is suitable for elementary, secondary, and college teachers. It supports an unlimited number of students, an unlimited number of grades, and an unlimited number of classes. The manual isn't indexed, but the table of contents is comprehensive and appears to serve the purpose.

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—KCS 3.5
(continued from p. 46)

map feature in Level II to translate your settings to QuickScore's for printing, but then the drum part will play using the wrong sounds. On the whole, the setup features are useful, but could have been integrated more fully into the rest of the program. A number of users have reported finding bugs in the Instrument and Drumkit sections of KCS 3.54; Dr. T's recommends upgrading to version 3.56 if you are having trouble. I found that clicking on the "More Instruments" button to access program changes 65-128 consistently crashed the program.

QuickScore is a standard notation display and printing program. On the whole it works well, with the significant limitation that no editing of the notation is possible from within the QuickScore program. QuickScore can display one track or the full score and features the ability to play the notated music if Tiger is currently running. You can set a variety of transcription options for each individual track in order to get the best possible printout. These include clef, key signature, time signature, beaming, and printout quantization. QuickScore can also split tracks to display them on a grand staff (with treble and bass clefs). QuickScore can display notation in either medium or high resolution (using the interlace mode). You can switch between display resolutions easily, and can set the colors to minimize flicker. Once you have the printout settings optimized for best display and printing, you can save them for future use. While QuickScore is more limited than the Copyist DTP or Copyist Apprentice programs, it is much easier to use.

One option I'd like to see is the ability for KCS, Tiger, and QuickScore to share information about where they are in a song. In other words, if I'm displaying a track in QuickScore and find an error and stop playback, when I enter Tiger it should automatically go to that spot to allow me to quickly edit the mistake. This kind of auto-locate function would make the various modules in KCS more integrated and easier to use. I should also be able to go directly to the affected spot in the KCS event list editor. This feature is particularly missed since QuickScore has no note-editing features. QuickScore printouts use the printer drivers specified in Preferences. On the whole they

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were adequate for editing and for practice use, but not good enough for publication. QuickScore notation does include slanted beams, but there seems to be no real support for triplets. Generally, I rate the QuickScore printouts to be of slightly better quality than those produced by Bars and Pipes Professional.

Other changes to the main KCS program are mostly tweaks and fine tuning. More commands have been added to the menus, saving some trips to the environments screen. There are some new options in the split window, which allow more control over what notes and controller data get transferred to another track. Support for the Phantom SMPTE interface is better integrated into KCS, and Phantom settings are now saved with KCS .ALL files. There is also a number of improvements in the AutoMix program. I would like to have seen some improvement in importing of MIDI files. If imported MIDI files do not explicitly set their length in the first track, KCS will not play them properly. The program should set the length automatically, instead of requiring the user to set it manually. One other significant addition is a raise priority option. It raises KCS's priority during recording and playback operations, temporarily disabling all other active programs. This ensures the best possible timing accuracy during critical operations. Other programs become active as soon as you press a key, move the mouse, or leave the KCS screen.

The bottom line is that the KCS 3.5 is a significant update. I find the Tiger graphic editor to be fantastically useful. The ability to edit while music is playing is a great step forward. The QuickScore module is also useful, though I really wish it allowed editing notation with the mouse. Still, while QuickScore has limited functionality, it is much easier to use than the Copyist. I would like to see a little more integration of KCS in terms of sharing information between various MPE modules. Still the changes in this update build on KCS's strengths (great editing power and flexibility) while making the program easier to use. The removal of copy protection is also a great step forward. KCS 3.5 is a professional quality MIDI sequencer, with most of the features a professional needs. The only significant omissions are notation editing, multi-port MIDI interface support, and better SMPTE support (including MIDI time code). Dr. T's has a great record of support for the Amiga, so some of these features may appear in future upgrades. For now, though, a great program just got better.

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KCS 3.5
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Correction

In the August, 1991 issue of *Amazing Computing*, in the Sonar Ranging article, we inadvertently left out the listing for the final portion of the program. We apologize for any inconvenience this may have caused.

```
SCREEN 1,320,200,4,1
WINDOW 2,"Sonar",,,1
 CIRCLE (150,20),140,2,-3.14,6.28
  LINE (150,20)-(290,20),2
DIM obj(48),p(48),st(48)
REM Set Up Stepper-Motor
ddr = 12575489&:dr = 12574977&
POKE dr,15: POKE ddr ,127
xc = 150: yc = 22: r = 136 :j = 0
FOR i = 1 TO 48
   p(i) = i * (3.14/48)
   IF j = 4 THEN j = 0
   st(i) = 2^j
   j = j + 1
  NEXT i

REM Sonar Ranging ML Code
LIBRARY "exec.library"
DECLARE FUNCTION allocmem& LIBRARY
mlspace& = allocmem&(156,1)
FOR j% = 0 TO 78
READ mlcode$
POKEW mlspace& + j%*2, VAL("&h" + mlcode$)
NEXT
' ML Code
DATA 48e7, c080,2c78,0004,4eae,ff88,41fa,0086
DATA 10bc, 0000,13fc,007f,00bf,e301,13fc,0000
DATA 00bf, e101,0039,0040,00bf,e101,1039,00bf
DATA de00, 103c,00c0,803c,0008,13c0,00bf,de00
DATA 13fc, 007f,00bf,dd00,13fc,0048,00bf,d400
DATA 13fc, 0000,00bf,d500,0839,0007,00bf,e101
DATA 6620, 0839,0000,00bf,dd00,67ec,0650,0001
DATA 0c50, 0276,6700,000c,08f9,0000,00bf,de00
DATA 60d6, 0239,003f,00bf,e101,4eae,ff82,4cdf
DATA 0103, 4e75,0000,0000,0000,0000,0000,0000


REM Sonar Screen
FOR t = 1 TO 10000:NEXT t
start:
FOR i = 1 TO 48
GOSUB lineplot
 NEXT i
FOR i = 47 TO 2 STEP -1
GOSUB lineplot
NEXT i
GOTO start
lineplot:
x = r*COS(p(i)):y = r*SIN(p(i))
x = (x+xc) :y = (.82*y+yc)
LINE (150,22)- (x,y)
rm = PEEK(dr):GOSUB  sonar :POKE dr,rm
LINE (150,22) - (x,y),0
  GOSUB objectplot
    GOSUB scan

RETURN
objectplot:
ot = obj(i)
xx = ot*COS(p(i)):yy = ot*SIN(p(i)):xx = (xx+xc):yy = (.82*yy+yc)
CIRCLE (xx,yy),2,0
dt = INT(distance / 4 )
xx = dt*COS(p(i)):yy = dt*SIN(p(i)):xx = (xx+xc):yy = (.82*yy+yc)
obj(i) = dt
CIRCLE (xx,yy),2
RETURN

REM Stepper-Motor Scan
scan:
IF INKEY$ <>"" THEN finish
sp = 15 - st(i):POKE dr,sp
RETURN

REM Sonar Ranging Module
sonar:
CALL mlspace&
totaldis = PEEKW (mlspace& + 148)
 distance = totaldis/2
POKEW mlspace& + 148,0
RETURN

finish:
CALL freemem(mlspace&,156)
LIBRARY CLOSE
POKE dr,15
END
```

•AC•

Simplified

File Decompression Using ARexx

by Randy Finch

First off, ARexx is not the nickname of one of the prehistoric dinosaurs. It is the Amiga version of the Rexx language. ARexx was written by William "Bill" S. Hawes and is sold by him (see information at the end of this article). Bill became famous in the Amiga community several years ago when he made his program Conman freely distributable. Conman added command line editing and history to the CLI window. Bill added to Conman to create a complete command environment to replace the CLI called WShell. This product is available commercially. I have been using it for years and have been very pleased. I continue to use it even though Commodore now has a shell available with the operating system.

The pinnacle of Bill's success (so far) has to be ARexx. When I attended the 1988 Amiga Developer's Conference in Washinton, D.C., users made pleas to the developers to incorporate ARexx interfaces into their products. These pleas paid off. Many Amiga software packages now have ARexx interfaces. It has become so commonplace that Commodore has made ARexx a standard part of release 2.0 of the operating system.

ARexx is a high level programming language with a source level debugging facility and more. It can also be used as a command language. Command programs, more commonly known as batch files, scripts, or macros, can be used to extend the set of predefined operating system commands. No doubt most of you have written a script at one point or another where several commands were combined together to create a program that accomplished a task that no single command could have done alone.

ARexx allows scripts to be written with the added flexibility of having a programming language available. Standard scripts rely totally on the operating system commands. This makes some tasks quite difficult because looping constructs may be hard to implement, variables may be needed, etc. ARexx allows these types of tasks to be implemented easily since the programming language and the operating system commands can be meshed in an easy and useful way. An example will be given later. Also, ARexx can communicate with application programs. This feature can be used to allow the user to customize a program, or it can be used to allow one program to control another program within the multitasking environment of the Amiga. This is a very powerful feature. This article will focus on ARexx as a programming and command language.

ARexx as a Programming Language

ARexx is an interpretive language. Programs can be created with a text editor and saved to disk as an ASCII file. The ARexx interpreter will read this file and execute it on-the-fly. In order to execute an ARexx program, one must load a background program called the resident process. The resident process program name is REXXMAST. If ARexx programs are to be executed frequently, the REXXMAST program can be loaded from within the STARTUP-SEQUENCE script file. The resident process will remain loaded and available until the RXC command is issued. An ARexx program, which should have a .rexx extension (e.g., program.rexx), can be executed by issuing the command:

```
RX program [arguments]
```

If you use WShell, the RX command is not needed because the shell can launch ARexx programs without RX. When an attempt is made to execute a program, the current directory is searched first. If the program is not found there, the directory currently assigned to the rexx: device is searched.

ARexx Goes to the Library

The ARexx distribution disks contain two shared libraries that need to be copied to the libs directory REXXSYSLIB.LIBRARY and REXXSUPPORT.LIBRARY. The former contains functions that are used extensively during program interpretation. Although many of the functions are highly specific to the interpreter, some of the functions may be useful in user programs. This library is opened when REXXMAST is loaded. The latter library contains useful functions specific to the Amiga. It must be opened by the user. Also, ARexx makes use of the MATHIEEEDOUBBAS.LIBRARY on the Workbench disk when performing floating point math.

An Example Program

At this point, let's look at an example program. It is entitled FX.rexx and is shown in Listing 1. Line numbers have been added so you can follow the program easily during the following discussion. FX.rexx is a generic file extraction program. Since I lead a small public domain library club in my area, I frequently download programs from bulletin boards to include on library disks. Typically, the files on bulletin boards are compressed with one of several available compression programs. The three compression programs I use most frequently are ARC, ZOO, and LHARC. Files compressed with these three programs have standard extension names of .arc, .zoo, and .lzh, respectively.

> ARexx recognizes several types of clauses such as null clauses, label instuction clauses, and command clauses.

During a typical telecommunications session, I will download several compressed files, storing all of them in a directory on my hard disk. When the downloading process is complete, I create a subdirectory for each file and decompress each file into its corresponding subdirectory using the appropriate compression program. This can be a headache when many files have been downloaded. Therefore, I wrote FX.rexx to ease my burden. Let's take a detailed look at FX.rexx.

All Clauses Except Santa

Line 1 is a comment line. All ARexx programs, for historical reasons, must begin with a comment line. Notice that ARexx comments are identical to C comments with an opening /* and a closing */.

Line 3 is a command clause. ARexx recognizes several types of clauses such as null clauses (e.g. lines 1 and 2), label clauses (no examples), assignment clauses (e.g.- lines 8 and 9), instruction clauses (e.g.- lines 7 and 10), and command clauses (e.g., lines 3 and 15). Any statement that cannot be classified as one of the first four clause types is classified as a command clause. The statement expression is evaluated and passed to the external host which could be the operating system, as in our case, or an application program. Notice that single quotes enclose the LIST command in line 3. This is not necessary as long as there is nothing in the command clause that can be confused with another clause type. In line 3, the > symbol causes problems since it is interpreted by ARexx to be a 'greater than' symbol rather than the intended redirection symbol for the LIST command. The purpose of line 3 is to create a quick list (only names) of the files in the current directory (which should be the one containing the downloaded files) in a file named RCFLIST on the RAM disk.

Line 5 is an instruction clause that calls one of many internal functions. The OPEN function opens the file ram:RCFLIST, that was just created, with a logical name of RCF. The 'R' means the file will be read.

Getting Looped

Line 7 is a DO instruction indicating that all statements up to its corresponding END instruction in line 24 are to be repeated until the end of file RCF is reached. The DO instruction in ARexx is very versatile, performing all the functions that FOR, DO..WHILE, and WHILE instructions in C perform.

Line 8 uses the internal READLN function to read a line from the RCF file and assign the string to the variable FN. Line 9 extracts the four right-hand characters from FN and assigns them to the variable RS.

It's The Same Old Line

Lines 10, 11, and 12 are actually one line. ARexx interprets the comma at the end of lines 10 and 11 to mean that the following line is a continuation of the current line. ARexx also allows several statements to reside on one line by separating them with a semi-colon. The IF instruction of lines 10-12 checks to see if the filename extension of the current filename, FN, matches one of the three that can be handled by the program. If it does, the statements within the THEN DO..END instructions (lines 13-23) are executed. If not, program execution resumes at line 24. The double equal sign, ==, is called an exact equality operator and indicates that a comparison should proceed character by character. If the equality operator, =, is used, leading blanks are ignored and the shorter string will be padded with blanks. The | symbol is a logical inclusive OR operator.

Here's Your Assignment

Line 14 assigns all the characters in the FN string except the last four, the filename extension, to the LS variable. Notice that the LENGTH function is called within the LEFT function.

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Follow These Commands

Lines 15 and 16 begin to show the real power of ARexx. Each of these lines combines an operating system command with an ARexx variable. ARexx will always evaluate an expression before passing it on to the host. In these cases, string concatenation is involved along with a variable substitution. For instance, in line 15, the variable LS is substituted with its current value. Let us suppose that FN is equal to 'RAYTRACE.zoo'. Then LS will be equal to 'RAYTRACE'. Thus, line 15 will evaluate to 'MAKEDIR RAYTRACE' and line 16 to 'CD RAYTRACE'. These two lines have the effect of creating a subdirectory with the same name as the compressed file without the extension and then making this new directory the current directory.

You might ask what would happen if line 15 was executed before LS had been assigned to anything. This brings up an interesting feature of ARexx. All variables are typeless; they are stored as strings. When an expression demands that a variable be considered something else such as numeric, the string is converted to the appropriate format and the expression is evaluated. When an unassigned variable is encountered within an expression, ARexx sets it equal to its own name. This means that the unassigned LS variable is equal to 'LS'. Therefore, if 'MAKEDIR ' LS is executed before LS is assigned, a directory with a name of LS would be created.

Make The Right Selection

Lines 17-21 make up a SELECT structure. Here, the appropriate compression program is executed based on the filename extension in the variable RS. WHEN instructions are used for selection. Note that for all three compression program calls following the THEN statements in lines 18-20, a / appears just before the closing single quote which is followed immediately by the variable LS. The expression in line 19 evaluates to ZOO x// /RAYTRACE.zoo. This command will call ZOO, which must be in your command path, telling it to extract the files in the RAYTRACE.zoo file one directory up in the hierarchy. All the extracted files will appear in the current directory, which is RAYTRACE (see line 16).

Line 22 is a CD command that changes the current directory back to the one in which the compressed files reside.

Wind Up

Line 23 is the END instruction that matches the DO instruction in line 13.

The END in line 24 matches the DO in line 7. When it executes, one of two things occurs. If the end of the RCF file has not been reached, the DO loop beginning in line 7 will execute again. If the end of the file has been reached, the loop is exited and lines 25 and 26 are executed, which close and delete the file that was created in line 3. It is not really necessary to close files in ARexx because the interpreter keeps a list of open files and closes them when a program exits. However, FX.rexx had to close ram:RCFLIST because this file needed to be deleted before the program exited.

Well, let's call it a wrap. I hope I have helped you to understand more about this important language for the Amiga called ARexx.

For further reading:

Cowlishaw, M. F., *The REXX Language: A Practical Guide to Programming;* Prentice-Hall 1985.

Listing 1: FX.rexx Generic File Extraction Program

```
1  /* Generic File Extractor - Randy C. Finch 1990 */
2
3  'list >ram:rcflist files quick'
4
5  call open('rcf','ram:rcflist','R')
6
7  do until eof('rcf')
8        fn = readln('rcf')
9        rs = right(fn,4)
10       if rs == '.arc' | ,
11          rs == '.zoo' | ,
12          rs == '.lzh'
13       then do
14                ls = left(fn,length(fn)-4)
15                'makedir ' ls
16                'cd ' ls
17                select
18                    when rs == '.arc' then   'arc x /'ls'.arc'
19                    when rs == '.zoo' then   'zoo x// /'ls'.zoo'
20                    when rs == '.lzh' then   'lharc -x x /'ls'.lzh'
21                end        /* select */
22                'cd /'
23       end   /* do */
24 end   /* do */
25 call close('rcf')
26 'delete ram:rcflist'
```

•AC•

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Part II

Puzzled Over ARexx?

Fun for the Artificially Intelligent Intermediate

by Merrill Callaway

In Part 1, September, 1991, we discussed briefly the history of ARexx as well as some of its more powerful features. This time we are going into even more elegant ways to use arrays and we will see how you can call an external function which, itself, can be derived from an original stand-alone program. Finally, we will discuss a nifty sort routine and use it as both a stand-alone program and as a function to be called by another program.

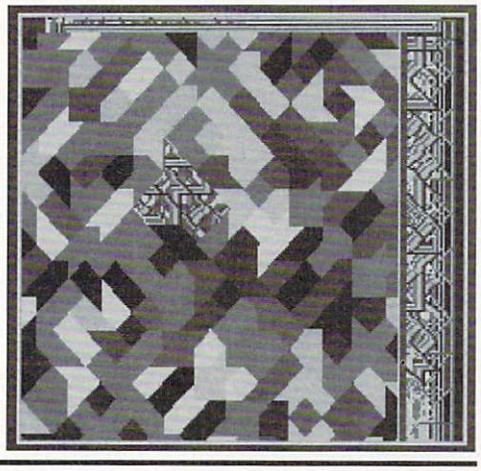
Right now, let's look at our internal function we called from our main puzzle program with the line:

```
/********* SECTION THREE CALL AN INTERNAL FUNCTION ************/
/* 30. */ stat=STATS(k,let.)
/* Calls an internal function, a PROCEDURE called STATS()    */
/* Sets stat = to the RESULT returned by the function STATS() */
/*****************************************************/
```

This line, as we mentioned before, returns a string as a result. If you entered the code and ran the program, you may have noticed that the first time the puzzle comes up, the frequency statistics are written on the screen like: W=1 V=3 G=2 K=5 A=1 X=1 F=6 and so on. These are all the letters used in the puzzle and how many times each is used; a frequency distribution as we say in statistics. How do we get this line from the puzzle? That is the purpose of our internal PROCEDURE called STATS: which we will now explore.

```
/******** SECTION SIX THE INTERNAL FUNCTION: FREQUENCY STATS **/
/* 74. */ STATS: PROCEDURE EXPOSE k let.
/* Bring in entire array (let.) and k */
/* 75. */ hadlet. = 0  /* Zero all entries of hadlet. array */
/* 76. */ outlist=''
/* 77. */ j.=0       /* Initialize letter counter */
/* 78. */ DO v=1 TO k-1
/* 79. */   IF ~DATATYPE(let.v,upper) THEN ITERATE
/* Ignore punctuation */
/* 80. */   letter=let.v  /* later, need independence from v  */
/* 81. */   IF hadlet.letter THEN DO
/* Have we had this letter before? */
/* 82. */     j.letter=j.letter+1
/* Increment letter counter */
/* 83. */      ITERATE v        /* (start v loop over again) */
/* 84. */      END
/* 85. */   hadlet.letter=1
/* If we haven't had letter we have now! */
/* 86. */   j.letter=j.letter+1
/* Increment letter counter */
/* 87. */   outlist=outlist letter
/* The outlist: list of unique letters */
/* 88. */    END  /* END of DO v=1 TO k-1 (v loop) */
/* 89. */ newlist=''
/* 90. */ u=0     /* Unique letter counter */
/* 91. */ DO WHILE outlist ~='' /* making the newlist */
/* 92. */   PARSE VAR outlist ltr outlist
/* 93. */   u=u+1
/* 94. */   entry = ltr'='j.ltr' '
/* Put the letters with their counts */
/* 95. */   newlist=newlist||entry
/* 96. */    END
/* 97. */ return u'/'newlist
/* Returns result to where STATS() was invoked */
/* Function ends here */
/*****************************************************************/
```

The first line of our internal function (called a Procedure in ARexx), Step 74, names the function STATS: which is the way



the interpreter finds our referenced function. Then comes the PROCEDURE instruction, followed by the option we choose,

Figure 1

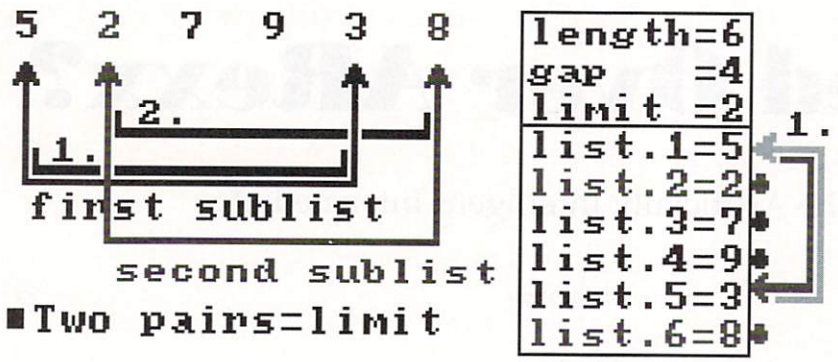


Fig.1 First time through.

Whenever you later need to sort something, you just call the function and pass to it the proper argument.

which is a list of EXPOSE variables (k and let.). This line is, therefore, how the interpreter knows where we are and what variables to bring over. In Step 75 we initialize an array, hadlet. to 0. This makes every possible element of the array hadlet. = 0 using only one instruction. We'll be building an outlist line so we make a null line, as we have already learned. We then initialize another array, one to count each unique letter (j.). We get into the now familiar DO loop, Steps 78-88, and the first statement should look familiar. In Step 79, we want to ITERATE (stop the current pass through the loop and go to the beginning, incrementing the counter, of course) if we get into any blanks or punctuation.

The assignment in Step 80 is a little tricky. Our logic calls for a novel use of a stem variable, and it won't do to have a node as part of the name of our letters, because each iteration the number v (the node) will be different. As you will soon see in Step 81, we will be needing to refer to past array elements in the hadlet. array. The letter variable itself is about to become a node! The very next statement (Step 81), an IF instruction, tests hadlet.letter for Boolean (0 or 1) directly; no need for = sign or numbers since it's either 0 or 1 by definition! The first time through, of course, the return will be 0 so we will go to the END at Step 84 and keep going. We set the array element hadlet.letter = 1, in Step 85, so that later on the program will know we have had this letter. Increment the count for this particular letter (j.letter) not the j from the main program, because it was not an EXPOSE variable. This j is completely protected and in no danger of getting confused with the j back at the ranch! During Steps 76 and 87 we build up outlist in the old way. Outlist is a list on one line of all unique letters in the puzzle; or the list of letters with duplicates removed. At the next time through, pretend we have a duplicate letter. The IF statement at Step 81 returns a 1, we increment the letter's counter, but we iterate v (going to Step 88) without building up outlist, because that letter is already there in outlist. This is a very nifty way to remove duplicates from a list; I adapted this code from some I found in the IBM Rexx book, by M.F. Cowlishaw, *The Rexx Language, A Practical Approach to Programming*, (2nd Ed. Prentice Hall, page 5).

The remaining lines of the procedure (the internal function) (89-97) count the number of unique letters in the variable u, and construct a newlist for passing back to the main program. The entr = line at Step 94 is as good a place as any to call your attention to the difference between variables (not in quotes) and 'strings' (in quotes) and the handy way they have of not complaining when you mix them up. They only complain if you don't match up the quotes. Finally we return u with newlist by connecting with a '/' between u and newlist at Step 97. We simply strip this off with a pattern template in a parse instruction after it goes back, and the '/' neatly goes away into the array called limbo.! Now for some harder stuff: the external sort (Listing 2).

Remember back in the DO FOREVER loop where we make our guesses? We used a SELECT block so we can easily change or upgrade our interface, our error checking, or the statistics and pattern matching we may wish to add. In our present example, we are getting back a list of code letters called stat and they are in the order of occurrence in the puzzle. But what if you'd rather see the code letters in frequency order? It's easier to guess if we group the letters in

Table 1.The Shellsort Special Trace 16 entries to sort...

```
gap=8 limit=8
 1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16  * * *  nodes
89 99 55 43 zz 32 84 yy aa 30 20 67 dd ww 75 42  * * *  list
[89 99 55 43 zz 32 84 yy[aa 30 20 67 dd ww 75 42  scan=1
__ 99 __ __ __ __ __ __ __ 30 __ __ __ __ __ __  scan=2 >>temp=30
__ () __ __ __ __ __ __ __ 99 __ __ __ __ __ __  scan=2
89(30)55 43 zz 32 84 yy aa 99 20 67 dd ww 75 42  scan=2 temp>>(30)
__ __ 55 __ __ __ __ __ __ __ 20 __ __ __ __ __  scan=3 >>temp=20
__ __ () __ __ __ __ __ __ __ 55 __ __ __ __ __  scan=3
89 30(20)43 zz 32 84 yy aa 99 55 67 dd ww 75 42  scan=3 temp>>(20)
89 30 20[43 zz 32 84 yy aa 99 55[67 dd ww 75 42  scan=4
__ __ __ __ zz __ __ __ __ __ __ __ dd __ __ __  scan=5 >>temp=dd
__ __ __ __ () __ __ __ __ __ __ __ zz __ __ __  scan=5
89 30 20 43(dd)32 84 yy aa 99 55 67 zz ww 75 42  scan=5 temp>>(dd)
89 30 20 43 dd[32 84 yy aa 99 55 67 zz[ww 75 42  scan=6
__ __ __ __ __ __ 84 __ __ __ __ __ __ __ 75 __  scan=7 >>temp=75
__ __ __ __ __ __ () __ __ __ __ __ __ __ 84 __  scan=7
89 30 20 43 dd 32(75)yy aa 99 55 67 zz ww 84 42  scan=7 temp>>(75)
__ __ __ __ __ __ __ yy __ __ __ __ __ __ __ 42  scan=8 >>temp=42
__ __ __ __ __ __ __ __ () __ __ __ __ __ __ yy  scan=8
89 30 20 43 dd 32 75(42)aa 99 55 67 zz ww 84 yy  scan=8 temp>>(42)

Entire Block Omitted... scan 1 through 12 gap=4 limit=12

gap=2 limit=14
 1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16  * * *  nodes
89 30 20 42 aa 32 55 43 dd 99 75 67 zz ww 84 yy  * * *  list

Part of Block Omitted... scan 1 through 9

__ __ __ __ __ __ __ __ __ 99 __ 67 __ __ __ __  scan=10 >>temp=67
__ __ __ __ __ __ __ __ __ () __ 99 __ __ __ __  scan=10
20 30 55 32 75 42 89 43 aa(67)dd 99 zz ww 84 yy  scan=10 temp>>(67)
20 30 55 32 75 42 89 43 aa 67[dd 99[zz ww 84 yy  scan=11
20 30 55 32 75 42 89 43 aa 67 dd[99 zz[ww 84 yy  scan=12
__ __ __ __ __ __ __ __ __ __ __ zz __ 84 __ __  scan=13 >>temp=84
__ __ __ __ __ __ __ __ __ __ __ () __ zz __ __  scan=13
doing loop...list.bubble at scan-gap(13-2=11)node.
__ __ __ __ __ __ __ __ __ __ dd __ __ __ __ __  scan=13 temp=84<dd
__ __ __ __ __ __ __ __ __ __ () __ dd __ __ __  list.11 to node 13=11+2
doing loop...list.bubble at scan-gap(13-2=11)node.
__ __ __ __ __ __ __ __ __ aa __ __ __ __ __ __  scan=13 temp=84<aa
__ __ __ __ __ __ __ __ __ () __ aa __ __ __ __  list.9 to node 11=9+2
doing loop...list.bubble at scan-gap(13-2=11)node.
__ __ __ __ __ __ 89 __ __ __ __ __ __ __ __ __  scan=13 temp=84<89
__ __ __ __ __ __ () __ 89 __ __ __ __ __ __ __  list.7 to node 9=7+2
20 30 55 32 75 42(84)43 89 67 aa 99 dd ww zz yy  scan=13 temp>>(84)
20 30 55 32 75 42 84 43 89 67 aa 99 dd[ww zz[yy  scan=14
Last Block Omitted...gap=1 limit=15
20 30 32 42 43 55 67 75 84 89 99 aa dd ww yy zz  final sorted list.
```

increasing frequency order because the letters in English obey a mean frequency distribution. (Have you heard about the statistician who drowned while fording a river with a mean depth of three feet?) So we want to sort these puzzle letters! We can if we enter a single 's' at the prompt in the DO FOREVER SELECT block in the main program. A WHEN block handles our input:

```
/* 48. */      WHEN old = 'S' & new = '' THEN DO
/* Calls exterior function and passes stat as argument to program   */
/* 49. */        CALL sortcall.rexx stat /* Function to sort stat  */
/* 50. */        stat=RESULT /* RESULT back from sortcall function */
/* 51. */         END        /* Now stat is sorted by frequency... */
```


This is a good place to introduce an external function because it is pretty likely that you will want to sort other stuff sometime, and a handy external function has to be programmed just once. Whenever you later need to sort something, you just call the function and pass to it the proper argument. Now passing arguments to an external function is not as straightforward as passing arguments to an internal function. For one thing, you cannot send an entire array by just sending its stem over as we did in the internal function stats where we sent over the entire array (let.) by allowing let. to stand for the whole thing.

The following lines are from Listing 2, the Sortcall.rexx function. They show the lines for our input to this function.

```
/********* LISTING 2 THE SHELL SORT EXTERNAL FUNCTION *************/
/********* SECTION ONE: INPUT THE ARGUMENT MAKE THE ARRAY **********/
/* 1.   */ /* The Shell Sort */
/* 2.   */ PARSE ARG stat     /* Bring in the line of data to sort */
/* 3.   */ m=1        /* Steps 3- 10 make an array of data (list.) */
/* 4.   */ DO WHILE stat ~=''
/* 5.   */    PARSE VAR stat item.m stat      /* Cut up into items */
/* 6.   */    PARSE VAR item.m ltr '=' num /* Get the letter and # */
/* 7.   */    IF num<10 THEN list.m='0'num'='ltr
/* Step 7: Align numbers so sort works */
/* 8.   */    IF num>=10 THEN list.m=num'='ltr
```

```
/* Also reverse order num=ltr  */
/* 9.   */    m=m+1
/* 10.  */    END
/* 11.  */    m=m-1       /* Adjust total number of unique letters */
/* 12.  */ SAY ''
/* 13.  */ SAY 'Sorting 'm 'unique letters ...'
/*****************************************************************/
```

The way we will do it here is to send over the line stat which, remember, is the result of the PROCEDURE called STATS: the internal function we discussed above. The line stat is sent as an argument to the external function which we have named sortcall.rexx—be sure to store Listing 2 as ASCII text under that name in the same directory where you keep your ARexx programs. Once in the function, the line stat is parsed apart into item., an array for storing the items to sort. Then the output (called sortout) is reconstructed from the sorted list. The last things to consider in making I/O for this function, are that the order of "letter=number" must be reversed to "number=letter" for the sort to reflect frequency and not alphabetic as the primary sort order and also that the numbers must be padded with leading zeros so that 1 will come before 10 because it will be 01 for sorting purposes. The I/O parts of sortcall.rexx are at the beginning and the end and are commented so you can easily separate out or modify them to suit your own needs. We've used a couple of IF statements (Steps 7 and 8) to pad the numbers after the letter/number order has been reversed through a pattern template in the PARSE instruction at Step 6. This is the output from sortcall.rexx: (Steps 35-42 of Listing 2).

```
/********* SECTION THREE: THE OUTPUT AND RETURN TO CALLER **********/
/* This block reconstructs a line to return to caller...*/
/* 35.  */ sortout=''
```

Figure 2

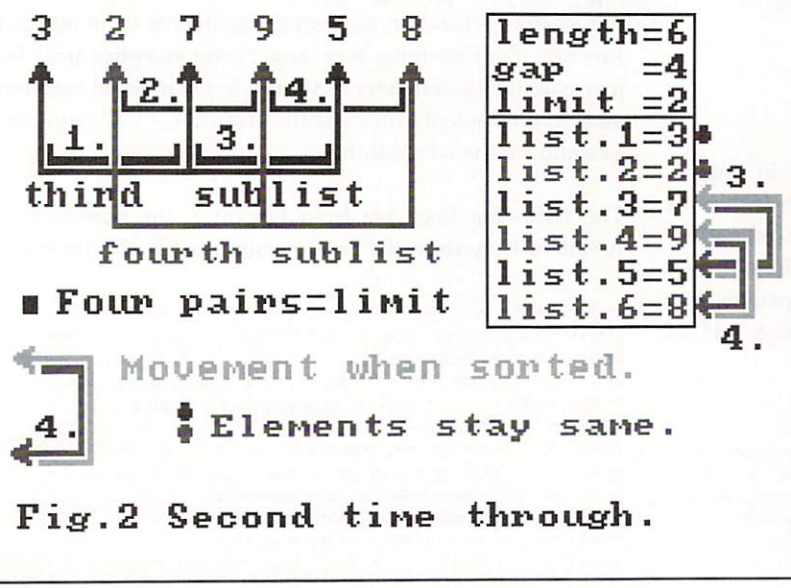


Fig.2 Second time through.

After the sort is complete, and the array. list contains the sorted list, we reverse the steps taken for the input.

```
/* 36.  */ DO i=1 TO length
/* 37.  */    PARSE VAR list.i num '=' let
/* 38.  */    IF LEFT(num,1) = '0' THEN num=RIGHT(num,LENGTH(NUM)-1)
/* Step 38:  Gets the leading 0's out!*/
/* 39.  */    list.i = let'='num' '
/* 40.  */    sortout = sortout||list.i
/* 41.  */    END
/* 42.  */ EXIT sortout  /* The string sortout returned to caller... */
/*********************************************************************/
```

After the sort is complete, and the array list. contains the sorted list, we reverse the steps taken for the input. It is pretty obvious by now how to use LEFT() and RIGHT() and LENGTH() functions to undo the zero padding we inserted before. If not, the manual is clear on how these work. As we strip off leading zeros, we also reverse each list.i element as we go, just before we tack it on to the end of the sortout line, which is returned with the EXIT instruction as an expression. The EXIT behaves in an external function as a RETURN does in an internal function. It serves to get the results back to the caller. When our particular result returns to the main program, we simply overwrite stat with it and from now on, stat is in sorted form. Of course, there is no need to go through sortcall.rexx more than once per puzzle.

Now for the good part, the sort itself!

```
/********* SECTION TWO: THE SHELLSORT OF ARRAY 'LIST.' ************/
/* From here until end is a good sort routine. See text, figures. */
/* 14. */ length=m
/* 15. */ gap = 1
/* 16. */ DO WHILE (gap < length); gap = gap * 2; END
/* 17. */ DO WHILE (gap > 1)
/* 18. */    gap = gap % 2
/* 19. */    limit = length - gap
/* 20. */    DO scan = 1 TO limit
```


The outer loop (at step 4), along with the opening loop to make gap (at step 3), creates our lists as illustrated in Figures 1, 2, and 3.

Figure 3

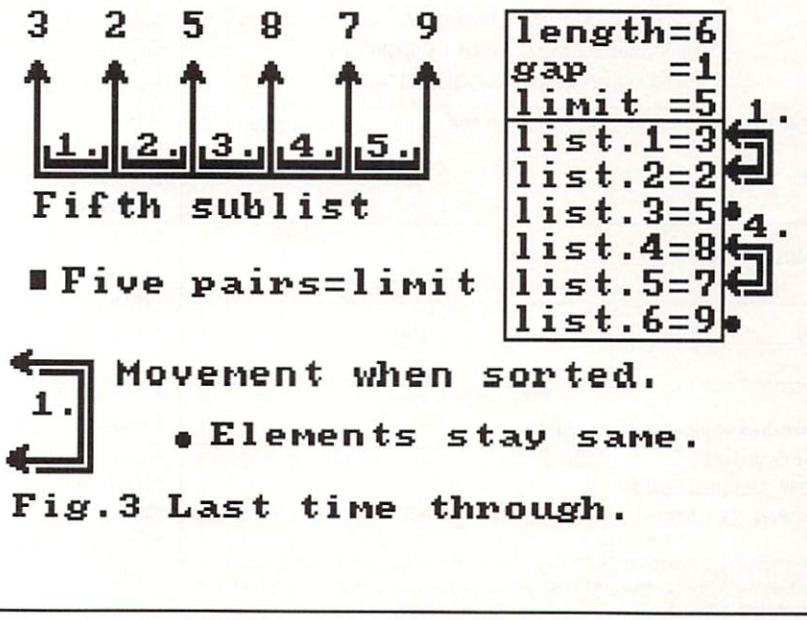


Fig.3 Last time through.

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```
/* 21. */      nexthigher = scan + gap
/* 22. */      IF list.scan > list.nexthigher THEN
/* 23. */        DO
/* 24. */        temp = list.nexthigher
/* 25. */        list.nexthigher = list.scan
      /* The inner nested bubble loop */
/* 26. */ DO bubble = scan-gap TO 1 BY -gap WHILE (temp < list.bubble)
/* 27. */          nexthigher = bubble + gap
/* 28. */          list.nexthigher = list.bubble
/* 29. */          END bubble
/* 30. */        bubble = bubble + gap
/* 31. */        list.bubble = temp
/* 32. */        END
/* 33. */      END scan
/* 34. */ END
/* End of sort routine, output follows...*/
/*****************************************************************/
```

This sort routine was adapted from code from another IBM Rexx book, *Modern Programming Using REXX*, (Prentice Hall, by R.P. O'Hara and D.R. Gomberg). It is called the Shell Sort after its inventor, Donald L. Shell. It is complicated and very fast and efficient, having the best performance when the list is mostly sorted to start with, so it is handy for sorting a list after you make a few more entries to it.

In the first two lines of the sort instructions, we find length which is m; the count of how many items in our list; and a variable called gap, initially set to 1. The first DO WHILE loop—a set of three instructions on one line (Step 16) separated by ";"—shows how we can make gap a the lowest power of 2 larger than or equal to length. So if we have six items in our list, then gap would have to come out 8, the first power of 2 greater than or equal to 6.

Then we enter the outer loop (Steps 17-34), to be executed as long as gap is greater than 1. Step 18 is integer division. We want only the integer part of a division of gap (a power of 2) divided in half. This is only necessary for the last pass, when gap = 1. We'll need integer division then, but it's OK to use it all the time even if all but one of our divisions come out even. In our above example of six items to be sorted, gap = 8 going into the outer loop. Integer division by 2 gives gap = 4. Now limit is set equal to the number of items minus gap, or 6 - 4 = 2. So limit this first time through the loop is 2. What is this number? It is hard to see, but each time through the loop, a number of lists are created, and these contain pairs of numbers to be compared. The total number of list pairs that will have to be compared during this iteration is limit. It is also the total number of sub-lists made so far. So the first time through, two pairs are compared; the second time through, four pairs of numbers are compared (also a total of four sublists have been made, two last time and two now); and finally the last time, five pairs of numbers must be compared, in one sublist. Each element in the list at any one time through the loop is in exactly one sublist. The sublist's entries are separated by the current value of gap. The easiest way to see how the lists are set up is to refer to Figure 1, Figure 2, and Figure 3 which show the evolution of these lists when we have six numbers to sort, as in our example above.

Shellsort is a complex of nested DO loops starting at Steps 4, 7, and 13. The DO instruction at Step 10 is not properly a DO loop, because there is no control variable. It is part of a DO block between Steps 10 and 19, which in turn is the result of an IF statement test. The outer loop (at Step 4), along with the opening loop to make gap (at Step 3), creates our lists as illustrated in Figures 1, 2, and 3. So the beginning and outer loops make the lists, and the inner two (at Steps 7 and 13) sort each sublist in turn. The last time through, when gap is always equal to 1, the outer loop THEN sorts a single almost-sorted list. It so happens that the inner loops, which do the sorting, perform best on almost-sorted data. If we set gap = 1 and if we use only the inner loops by themselves (scan loop Steps 7 to 20), then we have what is called a "bubble" sort. So when we say the bubble sort, we mean these innermost loops. The shell sort is a very fast, modified bubble sort. It effectively sorts a lot of smaller lists, and merges them together at the last. Its speed is much faster than a bubble sort alone. It is hard to tell what is going on at first glance, but with the assistance of a special table, we can begin to see the inner workings of the bubble sort. It's called a bubble sort because as you can see from Table 1, a bubble or vacant space floats up through the list. At Step 9, IF one of the comparison pair list.scan is greater than list.nexthigher, then list.nexthigher is set equal to a temporary variable creating this bubble, which

floats its way up through the inner loop (if necessary); and at the end of the outer bubble loop, the temporary variable is finally put into the bubble. Got it? I didn't, at first! That's why I made a special trace program to output Table 1.

Study Table 1, which is special output created with SAY instructions and certain tests to produce a trace of the list as it is sorted. When two numbers are to be compared in the "IF list.scan > list.nexthigher" test at Step 9, they are preceded by a '[' character, and are separated by gap. The bubble is denoted by a (), and filled with a number at Step 18. When two numbers are moved, all the numbers that don't move are left out and replaced with '__' so you can see only the moves. Whenever the innermost loop (Steps 13-16) is iterated, a message is displayed "doing loop...." When the temporary variable is placed into the bubble, a message in the margin reads "temp>>(33)" if the list element 33 is put into bubble. When a list element (say it's = 11) is put into the temporary variable, then the message reads ">>tem = 1". Finally, the scan count, which has to do with where we are in the processing of a particular set of sublists, is at the end of all line except inside the innermost loop, where scan is obvious from the context. It is much easier to study this Table 1 along with the code, than to try to explain in words. I have abridged the real output from my special trace to save space, but an example from each loop is clearly evident. As another visual help, Table 2 is included. It contains the console output from the program to show how the interface looks and lists part of a TRACE RESULTS command inserted at the start of the shellsort itself. You can trace each result of each instruction.

That's it! If you have followed along, you will now be equipped to make arrays, remove duplicates from a list, parse strings, sort lists, and call internal and external functions in ARexx. Oh, yes, and solve those little crypto-quotes in the newspaper!

Listing Two

```
Input filename and path:
[YOU PUT IN FILENAME CONTAINING PUZZLE]

There are 102 letters in the puzzle; 21 of them are unique.

R=12 A=8 D=10 W=2 P=8 O=6 I=3 J=8 S=7 B=1 K=7 X=3 L=3 U=6 F=3 E=6 Z=1 T=3
H=1 N=3 Q=1

RADWW PO R IPJI SDBDS SRKJXRJD XODLXS LUA FAUEUEZFPKJ, OULETRAD
____ _ _ ___ ____ _______ _____ __ __________, _______

PKEDJAREPUK, RKH JDKDARS FAUJARNNPKJ EROQO. TPSSPRN IRTDO
__________, __ ______ __________ _____. ______ ____

[Rtn] Quits. To guess that code letter X is A, enter: X=A
Enter S to sort letters by freq. What's your guess?
[YOU PUT IN 'S' TO SORT]
```



```
Start of TRACE RESULTS

Sorting 21 unique letters ...
 16 *-* length=m;
      >>> "21"
 17 *-* gap = 1;
      >>> "1"
 18 *-* DO WHILE (gap < length);
      >>> "1"
   18 *-* gap = gap * 2;
        >>> "2"
   18 *-* END;
   18 *-* DO WHILE (gap < length);
        >>> "1"
   18 *-* gap = gap * 2;
        >>> "4"
   18 *-* END;
   18 *-* DO WHILE (gap < length);
        >>> "1"
   18 *-* gap = gap * 2;
        >>> "8"

Part of trace skipped...

   18 *-* DO WHILE (gap < length);
        >>> "1"
   18 *-* gap = gap * 2;
        >>> "32"
   18 *-* END;
   18 *-* DO WHILE (gap < length);
        >>> "0"
 19 *-* DO WHILE (gap > 1);
      >>> "1"
```

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VIDEO I — 10-1, Friday and Saturday
- Basic Video & Amiga Relationship • Video Hardware
- S-Video vs NTSC • Video Software Overview

VIDEO II — 2-5, Friday and Saturday
- Continuation of Video I • Optimizing Video Output
- Video Toaster • Pro Video Post • Genlock Comparison

AMIGA ANIMATION — Instructor: Steve Segal.

ANIMATION I — 10-1, Saturday and Sunday
- 2D Character Animation • Digitized Animation
- Storyboarding • Character Design • Recording The Work

ANIMATION II — 2-5, Saturday and Sunday
- 3D Animation • Character Modelling •
- Texture & Bump Mapping • Solid Modeling • Ray Tracing

AMIGA AREXX — Instructor: R. L. Stockton

AREXX I — 10-1, Sunday
- Basic Language Structure • Libraries
- Host Addresses • String Handling

AREXX II — 2-5, Sunday
- Commercial Applications • Non-Amiga Rexx
- ARexx in WB 2.0 • Graphical User Interfaces

AMIGA GRAPHICS — Instructor: Jim Sachs

GRAPHICS I — 10-1, Friday and Saturday
- Basic Graphic Concepts • Anti-aliasing • HAM Painting
- Palette Selection • Brush Painting • Stencils

GRAPHICS II — 2-5, Friday and Saturday
- Advanced Graphic Displays • Image Processing
- Animation Planning • Beyond Bitmaps • Going to Print

AMIGA 3D — Instructor: Tony Dispoto

3D I — 10-1, Saturday and Sunday
- 3D Concepts • Modeling • Rendering Engines • Lighting
- Sculpt-Animate 4D • Turbo Silver • Imagine

3D II — 2-5, Saturday and Sunday
- Continuation of 3D I • 24 Bit Rendering • Use of Paths
- Optical Disk Recording • 3D Animation •

AMIGA MULTIMEDIA — Instructor: Steve Gillmor

MULTIMEDIA I — 10-1, Friday
- Multimedia Defined • Choosing Your Tools
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```
   20 *-* gap = gap % 2;
        >>> "16"
   21 *-* limit = length - gap;
        >>> "5"
```

Part of trace skipped...

```
   22 *-* DO scan = 1 TO limit;
        >>> "15"
    23 *-* nexthigher = scan + gap;
        >>> "16"
    24 *-* IF list.scan > list.nexthigher THEN
        >>> "1"
      24 *-* ;
      25 *-* DO;
       26 *-* temp = list.nexthigher;
            >>> "06=T"
       27 *-* list.nexthigher = list.scan;
            >>> "07=N"
       28 *-* DO bubble = scan-gap TO 1 BY -gap WHILE (temp < list.b...
            >>> "14"
            >>> "1"
            >>> "-1"
            >>> "1"
         29 *-* nexthigher = bubble + gap;
              >>> "15"
         30 *-* list.nexthigher = list.bubble;
              >>> "07=L"
          31 *-* END bubble;
         28 *-* DO bubble = scan-gap TO 1 BY -gap WHILE (temp <
list.b...
              >>> "13"
              >>> "0"
       32 *-* bubble = bubble + gap;
            >>> "14"
       33 *-* list.bubble = temp;
            >>> "06=T"
      34 *-* END;
   35 *-* END scan;
```

Rest of trace skipped...

```
/********* LISTING 2 THE SHELL SORT EXTERNAL FUNCTION *************/
/********* SECTION ONE: INPUT THE ARGUMENT MAKE THE ARRAY **********/
/* 1.  */ /* The Shell Sort */
/* 2.  */ PARSE ARG stat     /* Bring in the line of data to sort */
/* 3.  */ m=1        /* Steps 3- 10 make an array of data (list.) */
/* 4.  */ DO WHILE stat ~=''
/* 5.  */    PARSE VAR stat item.m stat      /* Cut up into items */
/* 6.  */    PARSE VAR item.m ltr '=' num /* Get the letter and # */
/* 7.  */    IF num<10 THEN list.m='0'num'='ltr
/* Step 7: Align numbers so sort works */
/* 8.  */    IF num>=10 THEN list.m=num'='ltr
/* Also reverse order num=ltr  */
/* 9.  */    m=m+1
/* 10. */    END
/* 11. */    m=m-1       /* Adjust total number of unique letters */
/* 12. */ SAY ''
/* 13. */ SAY 'Sorting 'm 'unique letters ...'
/*****************************************************************/
/********* SECTION TWO: THE SHELLSORT OF ARRAY 'LIST.' ************/
/* From here until end is a good sort routine. See text, figures.  */
/* 14. */ length=m
/* 15. */ gap = 1
/* 16. */ DO WHILE (gap < length); gap = gap * 2; END
/* 17. */ DO WHILE (gap > 1)
/* 18. */    gap = gap % 2
/* 19. */    limit = length - gap
/* 20. */    DO scan = 1 TO limit
/* 21. */       nexthigher = scan + gap
/* 22. */       IF list.scan > list.nexthigher THEN
/* 23. */          DO
/* 24. */          temp = list.nexthigher
/* 25. */          list.nexthigher = list.scan
       /* The inner nested bubble loop */
/* 26. */ DO bubble = scan-gap TO 1 BY -gap WHILE (temp < list.bubble)
/* 27. */             nexthigher = bubble + gap
/* 28. */             list.nexthigher = list.bubble
/* 29. */             END bubble
/* 30. */          bubble = bubble + gap
/* 31. */          list.bubble = temp
/* 32. */          END
/* 33. */       END scan
/* 34. */ END
/* End of sort routine, output follows...*/
/*****************************************************************/
/********* SECTION THREE: THE OUTPUT AND RETURN TO CALLER **********/
/* This block reconstructs a line to return to caller...*/
/* 35. */ sortout=''
/* 36. */ DO i=1 TO length
/* 37. */    PARSE VAR list.i num '=' let
/* 38. */    IF LEFT(num,1) = '0' THEN num=RIGHT(num,LENGTH(NUM)-1)
/* Step 38:  Gets the leading 0's out!*/
/* 39. */    list.i = let'='num' '
/* 40. */    sortout = sortout||list.i
/* 41. */    END
/* 42. */ EXIT sortout  /* The string sortout returned to caller... */
/*****************************************************************/
```

•AC•

Please write to
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ROOMERS

by The Bandito

[The statements and projections presented in "Roomers" are rumors in the purest sense. The bits of information are gathered from a third-party source from whispers inside the industry. At press time, they remain unconfirmed and are printed for entertainment value only. Accordingly, the staff and associates of Amazing Computing cannot be held responsible for the reports made in this column.]

Commodore Watchers Inc.

The Bandito has uncovered that Commodore is a licensee of Insite, makers of 20 megabyte floptical drives. These drives use 3.5" disks with special laser tracking so the magnetic heads can read and write bits very close together for ultra-high densities. The drives also read and write IBM format 1.4MB and 720K floppies, and no doubt Amiga floppies as well. Does this mean we'll see a 20MB 3.5" floppy in a future Amiga? Commodore is officially mute on the subject, but the Bandito thinks that would be a very clever idea for the 68040 Amiga in the works. 20MB would hold some of those large multimedia files, 24-bit graphics, or gigantic ANIMs. The access times are reasonably swift, though not so good as hard drives. The disks will cost perhaps $25, but that's not too bad for the amount of storage you get.

Perhaps this new wonder drive will be part of the new A4000 machine that's taking shape in Commodore's labs. Based on a 68040, of course, this speed demon is heading for a late 1992 ship date. Of course, plans can always change. What else can we look for? This machine may be the harbinger of a new, redesigned Amiga line. Not just on the outside, like the A3000 models. The new 8-bit graphics chipset will be a part of it, as will a Motorola DSP chip for 16-bit sound. The 8-bit graphics will be upgradable on the motherboard to full 24-bit. Even a new blitter is being considered, one that would be up to the challenge of such massive graphics, though perhaps an existing RISC chip may be used for this function. Of course, Commodore will never admit that any of this is in development, so all of these details must be considered speculative. Besides, engineering can change quite a bit in a year or two.

The NeXT Amiga

If you take a clean sheet of paper and think about what the next generation Amiga should be, what do you come up with? Well, it should be built around the 68040 for compatibility with current software—of course, device-independent graphics that can be any resolution or number of colors, with full 32-bit graphics, with the capability to use big screen monitors and display full motion video. Add to that a streamline, pipeline, fully parallel architecture using co-processors to reduce the load on the CPU. Install a hot DSP chip for CD Audio quality 16-bit sound, as well as the capability to help with other operations. It must have high density disk drives that can read MS-DOS or Mac format disks, built-in Ethernet for easy networking, and perhaps some good bundled EMail software. Oh, and it can run UNIX, too, for those who need it. What have you just described? A NeXT computer. There's another similarity: both companies have failed to sell the desired volume of machines despite their technical advantages. Sounds like they should merge or something, doesn't it? Of course, NeXT has sold only a few

machines compared to Amiga. But then again, how many UNIX Amigas has Commodore sold?

The Bandito has some advice to offer Commodore on the subject of product development. For years we've laughed at Commodore's pathetic attempts to create IBM-compatibility in the Amiga. Admittedly, the Bridgeboard is a neat concept, and the Janus libraries are an interesting idea. But let's face it: the price performance has always been abysmal. It's always been cheaper to buy a second computer than to use a Bridgeboard. Even the AToncе emulator, a much more clever design, is still expensive compared to the cost of IBM clones. So what's the point of all this IBM emulation anyway? Well, Commodore marketers will tell you that it helps to create a bigger market for Amigas—in other words, to sell more Amigas.

If that's the goal, the Bandito has a better way. If you turn the Bridgeboard idea around, then it makes a whole lot more sense. Yes, the Bandito is proposing that Commodore create Amiga on a card for the IBM PC — the ultimate game/sound card. Hey, think about it. It wouldn't be hard; all the necessary chips would easily fit on a full-size (maybe even a half-size) card, and without the expense of the case, keyboard, disk drives, and manufacturing, the price could be quite low—$299? Maybe even $199? That sounds about right, enough to give Commodore a good profit, but low enough to be an attractive buy. Why would people buy it? Well, it would be a terrific sound card, and a great way to play some hot games. Also, it could offer some good co-processing power for animation and windows. Commodore should include drivers for Windows and other popular software that could use the help. The card would also offer video capabilities,

like true NTSC output and a range of terrific video software and hardware. Heck, with some work you could probably even make the Video Toaster work with it. Ditch the Bridgeboard and go after the *real* market, Commodore.

New Business

NewTek has started NuTopia, a joint venture with Todd Rundgren that will create animations similar to Todd's "Change Myself" video for various customers. This was formally announced at the SIGGRAPH show, where NewTek made a splash with the Toaster. The Bandito hears that the new video effects in the Toaster 2.0 software are really unusual, like a "blackboard" wipe and a "poured video" wipe. NewTekkies claim that so far, they've only tapped a small part of the Toaster hardware's capabilities. Well, says the Bandito, then they better get back to writing software. Let's see what it can really do...

New Horizons has bought Central Coast software and will be merging the product lines and firms. This is another example of increasing consolidation in the Amiga software market; it should produce a stronger firm and better product development. You can expect to see more of this in the future if Amiga sales continue to languish. If there aren't enough hardware sales to drive company growth, then companies either have to grow by acquisition or create new product lines. Unfortunately for the Amiga faithful, many Amiga developers are expending their development dollars in other software markets. For instance, Gold Disk is making a push into the Macintosh animation market. New Horizons has a Macintosh word processor. You'll probably start seeing Windows products from Amiga developers

anxious to leverage their knowledge of graphic interfaces. Where does this leave the Amiga faithful?—perhaps with not as many product upgrades in the future.

That's Entertainment

What's hobbling Amiga games these days is the sheer size of the European market with its 512K, one-drive A500's. Despite the strong showing of some 1MB games in Europe, many developers are still leery of creating large games for the Amiga because they fear they won't sell enough in the lucrative European market. So developers are watching closely to see how well CDTV is received in Europe. After all, that would be a much better hardware platform for games. Psygnosis is already working hard on technology for CDTV. Their smash hit Lemmings is already out for the CDTV, and they have a demo on the disc of some amazing fractal landscape generation. It looks like the next generation of incredible Amiga games will be coming on CDTV.

As evidence that the European market is becoming more important, the Bandito offers up this tidbit: Sega, the Japanese videogame giant, has bought Virgin Mastertronic operations in the UK, Germany, Spain, France, and Austria for a cool $52 million. The reason: access to strong distribution channels in those countries. The Bandito predicts that more European software companies, many of whom rose to prominence on the C64 and later the Amiga, will become acquisition targets for growing international software companies seeking better European operations. *[At presss time this sale hasn't been confirmed.—Ed.]*

In other entertainment news, Sierra Online is starting a games-only network called The Sierra Network. Initially, they'll just have games like Bridge and Chess, but they are working on multiplayer versions of games like Red Baron and Leisure Suit Larry for next year. Pricing will be a flat monthly rate, which the Bandito suggests is the wave of the future. GEnie has a $4.95 monthly rate for all the telecom you can eat, though many services are billed at an hourly rate. CompuServe is still stuck with hourly charges, but that may change in the coming year. Meanwhile, PeopleLink has folded, and many of their users have switched to other networks. By the way, if you haven't tried them, such networks are a great place to find public domain pictures, shareware, and many other things of interest to avid Amigans.

From what the Bandito hears, Sierra is promising better Amiga versions of their games in the future. Amiga fans have complained about some of their earlier conversions, and their voices have been heard. That's a good thing, says the Bandito, because some companies are not even doing Amiga versions of their games. It looks like Origin Systems, creators of the Ultima series, have decided to concentrate in the IBM game market for awhile. Apparently, Ultima V on the Amiga didn't do so well. Will this be true for other game makers? Not any time soon, says the Bandito. Most game makers are trying to maximize their profits by putting each game out on as many different computers as they can. That's part of the reason you see so many companies expressing support for CDTV; they're just moving existing games over to it. When will we see games constructed only for CDTV? Not until next year at the earliest. However, there are quite a few CD-ROM games under development, so several products that really take advantage of CDTV's capabilities should come out next year.

Amigas Down Under

The World Of Amiga show held in Sydney, Australia attracted almost 30,000 people. Compare this to the last New York World of Amiga show, which drew only 19,000 Amiga fans. Guess those folks down under are a lot more excited about the Amiga than the jaded American public. CDTV was a big hit at the show, with many applications on display drawing good crowds.

Amigas All Over

So just where are Amiga sales at these days? The Bandito has tried to get some numbers, but Commodore is being cagey about exact figures. Seems as though there's good news and bad news. The good news: The Bandito's data receptors say that the Amiga is closing in on the 3 million unit mark worldwide, and that number should be reached this year. More good news: Commodore UK expects to sell 250,000-300,000 Amiga 500's this Christmas, just as they did last Christmas. Germany is not doing quite so well as they had been, but some of that is attributed to the general economic slowdown caused by Reunification.

So what's the bad news? U.S. sales haven't picked up. In fact, the Bandito hears mutterings that Amiga sales are slower now than they were two years ago, but you can't necessarily believe everything you hear. The new PowerUp program, giving C64 owners a break on the Amiga 500, is working well and may help the numbers along this year. But while Commodore has been doing a good job of getting previous Commodore customers to buy Amigas, they still haven't figured out a good way to attract new buyers.

What's the problem? Well, the price/performance difference between the Amiga and other computers is eroding. The difference between an A500 and an IBM clone used to be stunning. But clone prices have dropped sharply in the last year or two, and now for the cost of an Amiga 500 system, you can put together a clone system. Still not as good as the Amiga, but a lot better than it used to be for the price. People are comforted knowing they can run the same software they use at work. Heck, even the Macintosh is a little more reasonably priced these days, though the comparison is still laughable.

So what's the answer? Well, the Bandito thinks that the price of the Amiga 500 has to be even lower, and Commodore needs to spend heavily on advertising, and keep up the spending for at least a year or two. A small ad flurry every couple of years doesn't build recognition. And get Workbench 2.0 into ROM in all A500's as fast as you can, because that's an operating system that can really compete with the latest from Microsoft and Apple. Oh, yeah, come out with a Commodore-labeled expansion chassis like the Bodega Bay. Heck, Commodore should buy the Bodega Bay from California Access and sell it themselves; why waste the effort to reinvent it? Offer the CD-ROM drive at a reasonable price to go along with the A500. At the same time, keep pushing CDTV, drive the price down further, and advertise it heavily. CDTV needs to be under $500 street price, and the A500 should be under $250. Then you'll see the sales rocket upwards.

•AC•

(contined from page p. 17)

Sundance Video Toaster Editor System

The Amiga and the Apple Macintosh make a powerful combination, working together to form the Sundance/Toaster Video Production System.

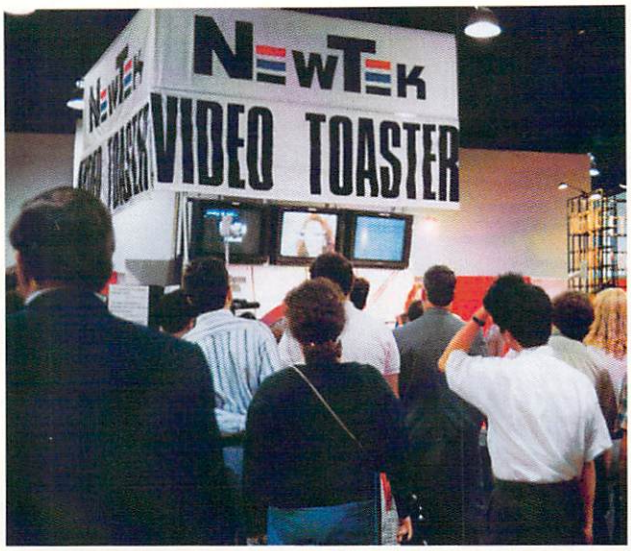
The Sundance system is a complete machine control system that integrates VTR's, laserdisc players, and all the Video Toaster's powerful effects by simply pointing and clicking on the Macintosh screen. The two programs for the Macintosh, Q-BASE and Q-CUT, interfaced with NewTek's Video Toaster, provides enormous post-production capabilities for a low price.

The video editing program, Q-CUT, is video oriented; it is not an emulation of the old-style film cutting environment. It is designed to minimize learning and training time by presenting the user with familiar SMPTE time code editing operations. With A/B Roll, generate an Edit Decision List (EDL) from a cuts only "workprint," then auto-assemble the program with effects generated by the Toaster. A Multi-Machine Interface (MMI) hardware device allows the user to control up to 15 playback sources using any combination of VTRs, VCRs and disc players. Q-CUT will record Lightwave 3D single frame animations. Other features include EDL management and music cuts.

The Sundance Video Toaster was on display at the MacWorld Exposition in Boston, Massachusetts. The show was held August 6 - 9, 1991.

Q-BASE is a simple, fast, easy-to-use Macintosh scene logging database which can create a permanent log of original footage based on SMPTE time code. When integrated with Q-CUT, scenes can be instantly located and effortlessly imported into the Edit Decision List. Q-BASE also offers project info archives, key word search for any word or words, a Group Scenes by key words option, and an event list. With the Auto-Q feature, the Amiga or any machine connected to the Macintosh or MMI will automatically cue to the in frame of any scene in the database. Both Q-BASE and Q-CUT can run simultaneously, so the user doesn't have to quit one program to enter the other; it's just a matter of clicking the Q-CUT or C-BASE window.

Along with the Sundance system, the Video Toaster provides multi-machine editing and integrated scene logging, as well as control for outputting Lightwave 3D animations. It's the perfect video production system. A demo disk and information packet is available for $10.00 directly from Sundance. *Suggested Retail Price: Q-BASE $675.00, Cuts Only (includes Q-BASE) $1,991.00, A/B Roll (includes Q-BASE & MMI) $3,995.00, Sundance Technology Group, 6221 N. O' Connor Rd., Ste. 105, Irving, TX 75039, (214) 869-1002, Inquiry #252* •AC•



Thousands of Macintosh users saw the power of Amiga desktop video.

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"At Your Request: Design your own requesters in AmigaBASIC", by John F. Weiderhirn
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"Ham Bones", by Robert D'Asto

❦ Vol. 5 No. 5 May 1990
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"Commodore's Amiga 3000", preview
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"Convergence", Part 5 of the Fractal series, by P. Castonguay
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"APL and The Amiga: Primitive Functions and Their Execution", by Henry T. Lippert

❦ Vol. 5 No. 7, July 1990
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"Apples, Oranges, and MIPS: 68030-based Accelerators For The Amiga 2000", by Ernest P. Viveiros, Jr.
"Poor Man's Spreadsheet", A simple spreadsheet program that demonstrates manipulating arrays, by Gerry L. Penrose
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❦ Vol. 5 No. 8, August 1990
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"Mimetics' FrameBuffer", review by Lonnie Watson
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"Title Screens That Shine: Adding light sources with DeluxePaint III", by Frank McMahon

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"Programming In C on a Floppy System", Yes even a stock A500 with a 512K RAM expander, by Paul MIller
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"Notes on PostScript Printing with Dr. T's Copyist", by Hal Belden
"CAD Overview: X-CAD Designer, X-CAD Professional, IntroCAD Plus, Aegis Draw 2000, UltraDesign", by Douglas Bullard
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"Getting A Lot For A Little", A comparison of the available Amiga archive programs, by Greg Epley
"High Density Media Comes to the Amiga", by John Steiner
"The KCS Power PC Board", by Ernest P. Viveiros, Jr.

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"Information X-Change", by Rick Broida
"Feeding The Memory Monster", the ICD AdRAM 540 and AdRAM 560D, review by Ernest P. Viveiros, Jr.
"Making A Name For Yourself", Creating logos on the Amiga, by Frank McMahon

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"Lauren in Disguise", workaround to DeluxPaint III's lack of HAM support, by Merrill Callaway
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Plus, a special feature on Graphic Word Processors

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"The Big Three in DTP," A desktop publishing overview by Richard Mataka
"The Amiga Desktop Publisher's Guide to Service Bureaus," by John Steiner
"M.A.S.T.'s Parallel Port SCSI Adapter," An inexpensive way to attach a hard disk to your A500 by Dan Michaelson
"All in One," programs for the beginner by Kim Schaffer

❦ Vol. 6, No.6, June 1991
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"MaxiPlan Plus,' a review by Chuck Raudonis
"CDTV," a comprehensive look at Comodore's hottest item
"HAM-E," a review introducing an excellent 24-bit color video board by David Johnson
"Pixel 3D," review by John Steiner
"Professional Page 2.0," a review of a complete and truly professional desktop publishing package by Rick Broida

❦ Vol. 6 No. 7, July 1991
Highlights include:
"Firecracker 24", a review of the latest is 24-bit video boards from Impulse by Frank McMahon
"Proper Grammar", a review of a comprehensive spell and grammar checker by Paul Lariveé
"PageStream", another entry in the word processing/ desktop publishing software line, by John Steiner
Also, extensive Summer CES coverage!

❦ Vol. 6 No. 8, August, 1991
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"AlterImage", create titling and special effects for your home videos and desktop publishing in minutes by Frank McMahon
"The Jerry Bryant Show", AC interviews Jerry Bryant whose secret weapons for producing four hours of television a week are the Amiga and the Video Toaster
"Understanding Genlocks", What is a genlock? Which one is best? The answers to these questions and more by Matt Drabick
"Super 8 Meets the Amiga", easy film-to-video transfer with the addition of Amiga graphics, by Patrik Beck
"Looking Good with B.A.D.", a review of Centaur Software's disk optomizing program by Rick Manasa
Also, AC continues the extensive coverage of the Summer CES in Chicago!

❦ Vol. 6 No. 9, September 1991
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"Frame Buffer Face-Off," an overview of framebuffers, by Frank McMahon
"DynaCADD," a review by Doug Bullard
Plus:
Special reports on Multimedia applications
AND
Super show coverage from **Australia** and **Orlando!**

The Fred Fish Collection

Due to the increasing size of the Fred Fish Collection, only the latest disks are represented here. For a complete list of all AC, AMICUS, and Fred Fish Disks, cataloged and cross-referenced for your convenience, please consult the current *AC's Guide To The Commodore Amiga* available at your local Amazing Dealer.

Fred Fish Disk 497

AutoActivate A commodity which activates the window under the mouse-pointer when pressing any key. Requires AmigaOS 2.0. This is version 1.08. Includes german version and source in C. Author: Stefan Sticht

Back&Front Sends a window to back or brings it to front with defined actions. For example put a window in front by double-clicking in it and send it back with the middle mouse button. Any keyboard or mouse event can be trapped. Number of required actions can be changed (double-click vs triple-click). Implemented as a commodity. Requires AmigaOS 2.0. This is version 1.03. Includes german version and source. Author: Stefan Sticht

CenterScreen A commodity which centers the frontmost screen horizontally on hotkey. Useful if you normally operate with overscan screens and an old program opens a normal size screen. Requires AmigaOS 2.0. This is version 1.05. Includes german version and source in C. Author: Stefan Sticht

ChangeColors A new palette tool to change the colors of the workbench or any other public screen. The feature of this tool is its font incependance; it uses the font of the screen on which it opens, instead of insisting on topaz 8. Looks really great if you use any other font than topaz on your workbench screen. This is version 1.03. Includes german version. Binary only. Author: Stefan Sticht

LeftyMouse Yet another LeftyMouse, this one implemented as a commodity. Swaps the left and right mousebutton for lefties. Requires AmigaOS 2.0. This is version 1.04. Includes german version and source in C. Author: Stefan Sticht

MouseAccel Yet another mouse accelerator, this one implemented as a commodity. If you find the built-in accelerator too slow, try this one. Requires AmigaOS 2.0. This is version 1.01. Includes german version and source in C. Author: Stefan Sticht

MouseBlanker Blanks the mouse pointer after a defined timeout or if you press any key. Implemented as a commodity. Requires AmigaOS 2.0. This is version 1.13. Includes german version and source in C. Author: Stefan Sticht

NewShellCX An "open shell on hotkey" commodity (like PopCLI). Requires AmigaOS 2.0. This is version 1.05. Includes german version and source in C. Author: Stefan Sticht

NLCalc A calculator program that uses the NL 3D look (see NLDaemon on this disk). It will open on any screen at the touch of a function key. Version 3.1.2, includes source. Author: Davide Cervone

NLDaemon Implements a "New Look" in Amiga programs, by using 3D-like gadgets. Converts standard intuition window gadgets into 3D versions. Version 1.4.3, includes source. Author: Davide Cervone

Reboot A program which reboots your Amiga by calling exec's Cold-Reboot() function. This is version 1.02. Includes source in C. Author: Stefan Sticht

Request Opens the OS 2.0 autorequester from script files. Title, text, gadgets and publicscreen of the requester can be changed by commandline options. This is version 1.00. Includes source in C. Author: Stefan Sticht

WindowShuffle Activates and brings to front next or previous window with hotkeys. Hotkeys can be changed. Implemented as a commodity. Requires AmigaOS 2.0. This is version 1.05. Includes german version and source in C. Author: Stefan Sticht

Fred Fish Disk 498

CPalette A palette adjusting program that can be brought up on just about any screen, including HAM and EHB. Version 1.1, includes source in assembly. Author: Craig Lever

FreeCopy FreeCopy is unlike most copiers in that it does not actually copy disks. It removes the protection so disks can easily be backed up with almost any program, and in some cases be installed on your hard drive. Version 1.4, binary only. Author: Greg Pringle

Pauky Demo version of an English to German (and vice versa) word translation trainer. Version 1.2, binary only. Author: David Wetzel

TapeCover TapeCover prints out those little paper inserts for casette tape cases. It lets you enter the name of the songs, and the title of each side. It should work on any printer that can print in that semi-condensed mode. Version 1.0, includes source in C. Author: Greg Pringle

WordSearch This is an automated wordsearch generator. Words orientations can be limited to any subset of the eight primary directions and the puzzle can be rotated or flipped. It has a spartan but functional user interface highlighted by the req.library. The system default font under WB 2.0 is supported for the puzzle display window. Version 1.0, includes source in C. Author: Craig Lever

YatZ One player Yatzee game. This program was written to take up little memory and to multitask nicely. Version 1.0, includes source in C. Author: Greg Pringle

ZoomDaemon Adds a "zoom" gadget to every window that can be resized. Pressing this gadget makes the window as large as possible or as small as possible, or brings it back to its normal size. Version 2.1.3, include source. Author: Davide Cervone

Fred Fish Disk 499

Diglib An Amiga device independent graphics library for fortran applications. This is an enhanced and debugged version of a public domain library, the development of which was sponsored by the US Government. This library is required for part of the Matlab package, also included on this disk. This is an update to the version on disk 267. Includes source in FORTRAN. Author: Hal Brand, Craig Wuest, James Locker, Mike Broida

Matlab A FORTRAN package (MATrix LABoratory) developed by Argonne National Laboratories for in house use. It provides comprehensive vector and tensor operations in a package which may be programmed either through a macro language or through execution of script files. Supported functions include sin, cos, tan, arcfunctions, upper triangular, lower triangular, determinants, matrix multiplication, identity, hilbert matrices, eigenvalues, eigenvectors, matrix roots, matrix products, inversion, and more. Amiga specific features include workbench startup, polar plots, contour plots, enhanced plot buffer control, and algorithmic plot display generation. This is an update to the version on disk 267, with many bug fixes and code reorganizations. Includes source in FORTRAN. Author: Jim Locker, Cleve Moler, Mike Broida

Fred Fish Disk 500

Signal Two programs designed to make it easy to write shell scripts that must be synchronized with the operation of another, in order to avoid disk thrashing for example. Includes source. Author: Davide Cervone

sWindows A program that allows you to use the title of a window to specify the screen on which the window will appear. This provides a method of opening CON: and RAW: windows on screens other than the WorkBench, for example. Includes source. Author: Davide Cervone

wIconify A program, and number of companion utilities, that allow you to iconify windows on any screen, including custom screens. Iconified windows become small icons on the bottom of the screen, and they can be opened again by double- clicking them. Also allows any screen to become a shared, WorkBench-like screen, and gives you the ability to create new screens specifically for this purpose. Each window can have its own custom icon. There is a programmers interface to allow programs to control their own icons. Version 3.8, includes source. Author: Davide Cervone

Fred Fish Disk 501

AddMenu A program to add infinite number of menus to the Tools menu on Workbench V2.0. Uses the correct Workbench.library calls and allows updating from CLI or from within the menu itself, meaning infinite number of functions. Binary only but source available from author. Author: Nic Wilson

AutoCLI A 'PopCLI' type replacement that works with WorkBench 2.0 and fully compatible with A3000 & accelerator boards. Always retains the default path and stack, and current directory. Can automatically open CLI/SHELL windows to 1 pixel less than screen size on opening. Other features include an optional Function-key press with the qualifier to execute an S:script file. Version 1.99d, binary only. Update to version on disk 424 with more enhancements. Author: Nic Wilson

Dominos The standard game of dominos with 6-6 set. The computer will provide quite a challenge to any skilled player. Version 1.0, includes source in Basic. Author: Russell Mason

DOSWatch Monitor for calls to AmigaDOS via dos.library. Needs Kickstart 1.2 or 1.3. This is version 1.0. HiSoft Devpac Assembler V1.21 source included. Author: A.Voss Wrede

Genesis A uniquely flexible and powerful program for generating and rendering fractal landscapes. Original algorithms allow incorporating fractal rivers as integral parts of the landscapes, with natural looking river valleys, gulleys, waterfalls, and lakes. A number of parameters can be varied to modify the landscape construction process and change the character of the final landscape, there is also great flexibility in the rendering. This is a demo version of the commercial product by the same name available from Microillusions and has some features disabled. Binary only. Author: James M. Bardeen

LList A 'list' type program that displays type of file. Many types of files included, and ability to extract information from other file types for recognition. Standard Amiga Wildcards supported. Binary only. Author: Nic Wilson

NewList A powerful LIST replacement. Supports many features including sorts, character filters, case sensitivity, most options offered by LIST, date construction, UNIX wildcards, and much more. Sort routines are very fast and memory usage is minimal. Version 5.0, an update to version 4.9 on disk 478. Binary only. Author: Phil Dietz

NoClick A program to stop drives clicking in KickStart V2.0. Uses the correct method. Also included is a patch for the kickstart files for a permanent no-click for V1.3 and V2.0, both A3000 version and kickfile version for other Amigas. Binary only and ASCII patch. Author: Nic Wilson

NoErrors A simple to use, Gadget driven program. Its main function is to hide physical hard errors from floppy disks or hard disks, so these disks can then be used without DOS showing read/write errors. Binary only. Author: Nic Wilson

Fred Fish Disk 502

AutoRev A little utility to make it easy to update program-headers ran from the CLI. Requires AmigaDos 2.0. This is Version 1.1r. Source included. Author: Jan van den Baard

CELLS A cellular automata experimentation lab, based on the rules described in the Computer Recreations column of the Scientific American, January 1990. Version 1.3. Source included. Author: Davide Cervone

EternalRome A historical strategy game, that in spite of its high complexity is fast and easy to play. Fully mouse controlled with a fine zoomable map of the Roman empire (overscan and interlaced options). The simulation delivers many historical insights because of its accuracy (may be used for educational purposes) and is a challenging and entertaining game for two or more players (also interesting for solitary studies). Version 1.0 (tryware). Binary only. Author: Sven Hartrumpf

ReturnCode Two Short programs (LogRC and GetRC) to allow the "Return Code" left by a previous program to be saved in a form suitable for further (script) testing. GetRC allows the Return Code to be set or viewed as desired. Assembly source included. Author: Jim Butterfield

SysInfo A program which reports interesting information about the configuration of your machine, including some speed comparisons with other configurations, versions of the OS software, etc. Version 2.22, an update to version 1.98 on disk 433. Binary only. Author: Nic Wilson

TrackDOS A program that allows easy transfer of data between DOS, memory and trackdisk.device. DOS means the data contained within a file, memory means the data contained anywhere within the memory map and trackdisk.device means data stored on a disk not accessabie with DOS (eg. bootblocks special loader disks etc.). The transfer of data between these three areas is not normally easy or convenient. TrackDos was written to overcome this. This is version 1.08, an update to 1.04 on Fish disk 365. Binary only. Author: Nic Wilson

Fred Fish Disk 503

NoFragLib A library containing 6 routines for defragmenting memory. Extracted and updated from the "tool.library" on disk 475. Includes source. Author: Jan van den Baard

PCQ A freely redistributable, self compiling, Pascal compiler for the Amiga. This is version 1.2a, an update to version 1.1c on disk 339. It has many enhancements and improvments. It is bundled with the latest versions of A68K assembler, Blink linker, Debug, and Mon to give a complete develop- ment environment. Includes the compiler source and example programs. Author: Patrick Quaid

Fred Fish Disk 504

PolySiliCon A centralized Shell Command Interface with visible scrollable History and mouse access. Allows multiple shells to be controlled from a single command/history window. Commands can be re-executed with a mouse click. A group of commands for a project may be loaded into the history from a file for easy access. Compatible with both 1.3 and 2.0 AmigaDOS. ShareWare, binary only. Author: Pete Goodeve.

RoadRoute A program that determines from a user modifiable data base, the shortest and fastest routes between two cities. Includes a coarse and a detailed data set and a program, RoadScan, for examining the contents of large RoadRoute data files. This is version 1.7. Includes source. Author: Jim Butterfield

ShuttleCock Yet another animation from Eric Schwartz. Eric wanted to see if he could still do an animation that required less than 1 MB to run. Released May 1991. Author: Eric Schwartz

View A text displayer with many controls and features including searches, file requestors, jump to editor etc. This is version 1.0, a re-write that requires AmigaDos 2.0. Source is included. Author: Jan Van Den Baard

ViewDir Allows reading the current directory by commanding VIEWDIR "". Displays a listing of the specified directory with the total bytes at the bottom and the description of the file types next to each file. Also includes a "version string" to allow a DOS 2.0 VERSION command to read. This is version 2.1 an update to the version on disk 358. Assembler source included. Author: Jim Butterfield

Fred Fish Disk 505

TheDatingGame A very well done animation by Eric Schwartz. This is Eric's biggest animation project to date. The animation lasts nearly 4 minutes and requires 3 MB of RAM to run. Flip the Frog has all kinds of trouble getting to the house of his girlfriend, Clarisse Cat. This cartoon animation follows the style of the short theatrical cartoons of earlier days. The animation unpacks to two floppies. Shareware. Author: Eric Schwartz

Fred Fish Disk 506

NGTC Release Two of a trivia game based on "Star Trek: The Next Generation" TV series. Part 1 is on this disk. Part 2 is on disk 507. You also need Release One from disks 404 and 405. Created with The Director Version 2. Binary only. Author: Gregory Epley

Fred Fish Disk 507

LHCon A program that will convert Arc and Zoo formatted archives to LHArc format. This will save precious disk space. LHCon will do single files or entire directories. It also has the capability to preserve the comment field of the file for BBS programs that require it and for the individuals who label their programs in that manner. Version 1.01. Binary only. Author: Steve Robbins and Bill Huff

NGTC Release Two of a trivia game based on "Star Trek: The Next Generation" TV series. Part 2 is on this disk. Part 1 is on disk 506. You also need Release One from disks 404 and 405. Created with The Director Version 2. Binary only. Author: Gregory Epley

Fred Fish Disk 508

DirWork A fast, small, simple, efficent, shareware DirUtility that gets directories off floppies in about half the normal time. Configurable options and buttons, as well as all the usual features. This is Version 1.30, an update to version 1.12 on disk 406. Shareware. Binary only. Author: Chris Hames

HCC Amiga port of Sozobon, Limited's C Compiler, version 2.0. Can completely compile itself, supports 32 bit ints, and optimizer can 'registerize' variables. Includes compiler, optimizer, tool for creating interface code for Amiga system calls, startup code, C library, include files, and library routines that work with Motorola FFP format. Uses assembler A68k, linker BLink, and provided run-time shared C library CClib library. Includes source. Author: Sozobon, Limited. Amiga port, bug fixes and enhancements by Detlef Wuerkner

Fred Fish Disk 509

Multi_Player A music player that loads and plays a large variety of the "tracker" type sound modules. With an intuition interface, allows you to load formats like Intuitracker, NoisePlayer, Soundtracker, FutureComposer and 7 others including power- packed modules! Includes many sample modules in several of these formats. This is version 1.2. Includes source. Author: Thomas Landspurg

PCKeyMap This program uses an InputEventHandler to manipulate the backslash (\) and some other useful keys in order to better emulate an XT/AT keyboard on the German Amiga keyboard (which is missing the backslash and some other keys). This is version 1.0. Includes source. Author: Peter Vorwerk

Fred Fish Disk 510

ATCopy A program to copy files from the Amiga side of a system equipped with a PC/AT bridgeboard, to the PC side, using wildcards. Copies directly through the shared memory. Supports CLI and WorkBench usage. This is version 2.22, an update to version 2.2 on disk 458. With some final bug fixes, this will be the last non-commercial release. Shareware, binary only. Author: Peter Vorwerk

SYNWORKS A graphics oriented environment for design, training and test of neural networks. The enclosed version is public domain and supports only three network models. Not all options are available but this version provides the most important features to allow users to decide if neural networks are an appropriate solution for their problems. Binary only. Author: Michael Kaiser

VMK A virus detector, this program no longer detects specific viri, instead it concentrates on checking system vectors and various parameters that viri typically modify in order to survive reboots. This is version 1.0, an update to version .27 on disk 328 listed under "Hames". Binary only. Author: Chris Hames

Fred Fish Disk 511

Connex A "connect-4" type game. This is version 4.0, an update to version 3.8 on disk 493. Shareware, binary only. Author: Adrian Millett

DirWork A fast, small, simple, efficent, shareware DirUtility that gets directories off floppies in about half the normal time. Configurable options and buttons, as well as all the usual features. This is Version 1.31, an update to version 1.30 on disk 508. Shareware. Binary only. Author: Chris Hames

Less A text file reader, descended from Unix "Less." Less has features found on no other Amiga file reader; it can use pipes, accepts multiple filenames, and has many convenient positioning commands for forward and backward movement, marking positions, etc. This version runs on all Amigas, under any screen resolution and font, and uses the full 8-bit character set. Other improvements include seaches using regular expressions, multiple file selection from Workbench, and resident operation. This is version 1.4Z, an update to version 1.3 on disk 149. Includes source. Author: Ray Zarling et. al.

OneKey A 1.3/2.0 compatible input handler for people who can only press (or cause to be pressed) one keyboard key at a time. OneKey gathers individually pressed qualifier keys (shift, alt, control, etc) and then applies them to the next non- qualifier key that is pressed. This is version 36.11. includes source. Author: Carolyn Scheppner

PCQ An update to PCQ from disk 503. This is only a partial distribution and includes just the compiler main pass, the documentation, and a ReadMe file. You need the distribution from disk 503 to use this material. This update is version 1.2b. Author: Patrick Quaid

Solitaire A shareware solitaire game, known widely as Klondike. The rules can be varied, and there are five different ways of working through the deck. Also includes a palette requester to fine tune the colors to your liking and a save-setup function that remembers how all the options are set. This is version 1.8, binary only. Author: Gaylan Wallis

Fred Fish Disk 512

Csh Replacement for the Amiga shell, similar to UN*X csh. Main features include over 100 built in commands, 70 functions, new system variables, file name completion, freely programmable command line editing, file classes, auto cd, lazy cd, intuition menus for the shell window, automatic RX-ing, local variables, $( ), statement blocks, high speed, plus much more. This is version 5.15, an update to version 4.02 on disk 458. Includes source. Author: U. Dominik Mueller, C. Borreo, S. Drew, M. Dillon

FlipIt Possibly the strongest Reversi/Othello type game available. Shareware, binary only. Author: Adrian Millett

M2Pascal A simple Modula-2 to Pascal translator. You can write simple programs on your Amiga using one of the available Modula-2 compilers, and then use this translator to generate Pascal source for export to other systems with Pascal compilers. Version 1.0, includes source in Modula-2. Author: Greg Mumm

Solitaire Yet another solitaire game. Nicely done with good graphics and sound. Shareware. Author: Pat Clark

Fred Fish Disk 513

DKBTrace A freely distributable raytrace program that takes a text description of a 3D scene and renders it to a 24-bit file which may be converted to HAM or viewed on an 24-bit card. The program features sophisticated textures, constructive solid geometry, and various graphics primitives such as quadrics (cones, cylinders, etc.), spheres, planes, triangles, smooth triangles, and quartics (donuts, etc.) Also included are many sample data files and many utilities for creating new data files and for post-processing the output files. Source and executables are included. Because of its size, the distribution has been split onto two disks. Disk 513 contains the raytracer and disk 514 contains the utilities. This is version 2.12, an update to version 2.0 on disk 397. Author: David Buck

NewList A powerful LIST command. Supports many features including sorts, character filters, case sensitivity, most options offered by LIST, date construction, UNIX wildcards, and much more. Sort routines are very fast and memory usage is minimal. Version 5.0a, an update to version 5.0 on disk 501. New features include recursion, hunt mode, custom formatting, multiple paths, paging, and much much more. Binary only. Author: Phil Dietz

Fred Fish Disk 514

DKBTrace A freely distributable raytrace program that takes a text description of a 3D scene and renders it to a 24-bit file which may be converted to HAM or viewed on an 24-bit card. The program features sophisticated textures, constructive solid geometry, and various graphics primitives such as quadrics (cones, cylinders, etc.), spheres, planes, triangles, smooth triangles, and quartics (donuts, etc.) Also included are many sample data files and many utilities for creating new data files and for post-processing the output files. Source and executables are included. Because of its size, the distribution has been split onto two disks. Disk 513 contains the raytracer and disk 514 contains the utilities. This is version 2.12, an update to version 2.0 on disk 397. Author: David Buck

GearCalc A bicycle gear ratio calculator. Version 2.0, binary only. Author: Ed Bacon

S220to8SVX Converts sound samples from a Roland S-220/S-10/MKS-100 to 8SVX IFF 8-bit samples. This is version 1.4, an update to version 1.0 on disk 286. New features include volume-adjust and start-endpoint setting. Includes source in assembler. Author: Dieter Bruns

TLog An intuition based program that records statistics to monitor athletic training progress. Maintains a daily record of distance, time, heart rate, weight and temp- erature. Links a text file with the record for a free form diary. The AREXX commands provide the basis for generating custom reports from the data base. Sample script allows TLog to automatically get to a scheduler to post reminders of upcoming events. Version 1.0, shareware binary only. Author: Ed Bacon

Fred Fish Disk 515

CheckBook Checkbook Accountant is a checkbook recording, balancing, budgeting, and analyzing program. Intended to be used as a companion to a checkbook register and not as a replace- ment, this program offers a simple way of balancing check- books, tracking bank transactions, and recording and analyzing budgeted transactions. This is version 2.0, an update to version 0.9 on disk 425. Some of the new features include: Sort, Move, Duplicate, Program Prefs, Reoccurring Transaction Groups, Statistics, and Search & Replace. AmigaDOS 1.3 or Release 2 required. Binary only. Author: Jeffrey R. Almasol

D110EdDemo Demo version of an editor for Roland D-110. Bulk dump is available. Edited parameters are not submitted to Roland D-110. Author: Dieter Bruns

PP Powerpacker patcher is a small tool that patches the DOS library so that PowerPacker datafiles will start acting as if they were "normal" files. Sample use of PP would be to crunch all your .info files. They will still retain their functionality as long as PP is installed, and WB will never know the difference. Icons are useful, but take up a lot of valuable disk space. You may also use any text viewer or editor you desire directly on Powerpacker files! Version 1.0, shareware, includes source. Author: Michael Berg

SetCCOPTS Lets you easily deal with the MANX 'CCOPTS' environment variable. You can store settings to disk. Has a complete intuition interface. This is version 1.00, binary only. Author: Stephan Flother

Fred Fish Disk 516

Enigma An interactive animation object that can be viewed as a puzzle or a game object. The Enigma! Machine can be programed by the user to generate text. Part of the challenge is to discover how to program it to generate meaningful output. Version 1.00, binary only. Author: Martin C. Kees

Loom Simulation of an eight harness loom. Supports 15 colors for warp and weft threads. Scalable display. Patterns created can be printed in draft format or saved as IFF files. Version 1.00, binary only. Author: Martin C. Kees

PhoneGram Generates text from phone numbers. Attempts to find all three and four letter words encoded by any phone number. Graphic keypad display with sound. Version 1.01, binary only. Author: Martin C. Kees

Quotes Quotes is a pseudo-random quote generator. It will scan a specified file of quotes, pick one at random, and display it. Great for startup-sequences. CLI-only. Version 1.0, includes source. Author: Adam Evans

RexxView Monitors messages sent to the REXX port. Messages are described by task, action code and modifiers, and the contents of arg0 slot is displayed. CLI utility to monitor the REXX IPC hub for Arexx programmers and interfacers. Version 1.01, includes JForth source. Author: Martin C. Kees

XI Demo version of a single bit-plane cel animation generator. Uses an onion-skin display to rough in an animation sequence. Has a large ARexx command set, multiple precision bezier curves and splines, scalable and rotatable polygons, brush support with blitter logic, turtle graphics and macro key definitions. Requires req.library (Fox/Dawson). Non-saving demo version, binary only. Author: Martin C. Kees

Fred Fish Disk 517

Aequipot A program that renders multicolor pictures using an algorithm based on electrostatic effects. Renders in low-res, in high- res, and in two speed/quality modes. Includes both PAL and NTSC versions, English and German docs. This is version 1.15, an update to version 1.06 on disk 474. Now supports saving pictures in IFF-ILBM format and animation rendering via script files. Freeware, includes source in PCQ. Author: Juergen Matern

AmiBack Demo version of a new backup utility. Features include backup to any AmigaDOS compatible device (such as floppies, removable hard disks, fixed media hard disk, and tape drives), no copy protection, configuration files, complete backups, incremental backups, selective backups, file exclusion filter, setting of archive bit, etc. Demo version does not have restore, compare, or scheduler. Version 1.04, an update to version 1.03 on disk 493. Binary only. Author: MoonLighter Software

CWToy A program like Say or SpeechToy that allows your Amiga to communicate in International Morse Code. A lot of nice features for code practice or with a simple hardware interface even useful as a keyboard program for your transmitter. Version 1.0, includes source in C. Author: Rob Frohne

Hex A file-based binary file editor with lots of features. Version 1.0, shareware, binary only. Author: Nicola Salmoria

RussianFonts Russian Fonts ranging from 13 points to 31 points. Author: Daniel Amor

Spliner A spline screen blanker commodity, derived from the spline code extracted from Tom Rokicki's Mackie and encapsulated into a standard AmigaDOS 2.0 commodity. Binary only. Author: Tom Rokicki, Sebastiano Vigna

Fred Fish Disk 518

AmiDock AmiDock is an Amiga version of the NeXT's Dock facility. It will open up a small window on your WorkBench full of little IFF brushes. Each brush represents an application, like an ICON, but it's a brush. Click on the brush and your application will start. This is version 1.3, an update to version 1.2.4 on disk 474. Shareware, binary only. Author: Gary Knight

Lister Program to display information about files in various types of archives, such as arc, cpio, lharc, tar, zip, and zoo. Version 1.0, includes source. Author: Kerry Cianos and Geoffrey Faivre-Malloy

Post An excellent PostScript interpreter for the Amiga which implements the full Adobe language. Supports type 1 and type 3 fonts, screen output, file output, and printer output. Requires Arp library V39+ and ConMan V1.3+. This is version 1.6, an update to version 1.5 on disk 468. Includes source in C. Author: Adrian Aylward

Fred Fish Disk 519

AVLSort A text file sort program, based on a general purpose AVL package by Mark Mallett (included). Handles as many lines as will fit in memory. Includes source. Author: Robert Pyron, Mark Mallett

ChkFrag A program that reports on the extent of file fragmentation in any specified directory tree. Binary only. Author: Timeus

FifoLib FIFO: is like PIPE: but is based on fifo.library rather than its own implementation. Fifo.library is a general fifo library implementation that supports named fifos, writing to a fifo from a hardware exception, multiple readers on a fifo with each getting the same data stream, efficient reading, and automatic or manual flow control. Programs that require non-blocking IO can access one side of a FIFO: connection via the fifo.library instead of the FIFO: device. Version 3.1, an update to version 2 on disk 448. Includes some source. Author: Matt Dillon

OakLisp A straight port of the OAKLISP system to the Amiga. OAKLISP is a Scheme-like LISP with an object-oriented base. An R3RS Scheme environment is included in the package. Because of its size, the distribution is made on two disks, 519 and 520. Both disks are required. Source is included. Author: Kevin Lang, Barak Pearlmutter, ported by Mike Meyer

Optimizer A disk optimizer that works on floppy disks, hard disks, and ram disks. It is designed to provide safe optimization, moving only one block at a time. Version 1.0, freeware, binary only. Author: Tim Stotelmeyer

Fred Fish Disk 520

IOBoard Full plans for a public domain hardware project which adds two parallel ports and two serial ports to an Amiga 500, 1000, or 2000, for less than $100, with the capability to upgrade to four ports of each type at any time. Includes serial and parallel drivers with source code. Version 2.10. Author: Jeff Lavin, Dan Babcock, Paul Coward

OakLisp A straight port of the OAKLISP system to the Amiga. OAKLISP is a Scheme-like LISP with an object-oriented base. An R3RS Scheme environment is included in the package. Because of its size, the distribution is made on two disks, 519 and 520. Both disks are required. Source is included. Author: Kevin Lang, Barak Pearlmutter, ported by Mike Meyer

Fred Fish Disk 521

A68k A 68000 assembler originally written in Modula-2 in 1985 and converted to C by Charlie Gibb in 1987. Has been converted to accept metacomco-compatible assembler source code and to generate Amiga objects. This is version 2.71, an update to version 2.61 on disk 314. Include source. Author: Brian Anderson; C translation and Amiga work done by Charlie Gibb

BatchMaster A program that makes creation of interactive command scripts a lot easier. It works as commands ASK, IF and SKIP together, only better. You can have up to four options to skip to, and select them with a mouse, as BatchMaster has an Intuition interface. This is version 1.27. Requires arp.library. Binary only. Author: Janne Pelkonen

CheckPrt A small program for checking the presence of a parallel printer from within a script file. Update of version on disk 479. Now also includes two small tools to test the state of some lines of the printer port, to make it easier to find the source of printer problems. Binary only. Author: Tom Kroener

K1 An editor program for the Kawai K1-II synthesizer. Includes a bankloader for single-patches and multi-patches, a single- patch editor, a multi-patch editor, and support for the effect-session and K1 controllers. Version 5.1, an update to version 4.8 on disk 481. Binary only. Author: Andreas Jung

LandScape A simple CAD program to aid in designing garden layouts. First the plan is laid out, placing lawns, paths, plants, etc., and the program then draws a '3D' picture of what the garden might look like in real life, from any viewpoint. Version 1.0, binary only. Author: Steve Goddard

SynthSong A song created using the freely-distributable program MED V.3.00. Although quite small (63k) on disk, this one expands in memory once loaded, lasting almost 65 minutes. Player program included. Author: Alex Van

StarrexT3E Converts any text file to an executable. The resulting program will only have a minimum of bytes appended (94 bytes for hunk structure and display-program). The text file is not limited by the size. Freeware, with source in C. Author: Garry Glendown

Fred Fish Disk 522

MAK The Mandelbrot Adventure Kit is a nicely done mandelbrot generator with full source code (about 18,000 lines of C code). Includes some sample images along with the parameters used to generate them, and lots of built-in help screens. Author: Steven Dillon

Fred Fish Disk 523

BMake A GNU Make subset. Includes pattern rules, conditionals, "include", function calls, etc. This is Version 1.4, with source. Author: Ben Eng

Conquest Lore of Conquest is a war game similar in concept to the board game Risk. You are the lord of an entire world, destined to rule the galaxy. Some worlds are virgin fruits, ready for you to colonize. Some worlds have natives who do not wish to accept your rule, these you must conquer for they will yield more valuable resources. As you claim the galaxy you will find, you are not the only one extending your dominion. This is a two-player game, so be prepared to defend yourself and take what is yours! Version 1.5, an update to version 1.3 on disk 459. Binary only, shareware. Author: Michael Bryant

PSGraph A graphing program with plot previews and encapsulated postscript output. Version 1.0, binary only. Author: Rick Golembiewski

ScreenJaeger A screen capture program that works by scanning through memory, allowing you to grab screens from programs that don't multitask, and save them as IFF files. Features include an Intuition interface, multiple bitplanes, support of all Amiga display modes and resolutions, CHIP and FAST memory, overscan, and both NTSC and PAL. This is version 1.0, includes full C source. Author: Syd L. Bolton

SerLib A shared library providing easy access to any serial device. Allows both synchronous and asynchronous access to the port. With support code for Lattice, Manx and Oberon. Includes examples in both C and Oberon (with source) and docs in ASCII, DVI, and PostScript. Shareware. Author: Garry Glendown, Oberon-interface by Frank Schummertz

Fred Fish Disk 524

Kamin Various interpreters from the book "Programming Languages, An Interpreter-Based Approach", by Samuel N. Kamin. This distribution includes lisp, apl, scheme, sasl, clu, prolog, and smalltalk interpreters, automatically translated from Pascal to C using p2c. Includes C and Pascal source. Author: Samuel Kamin

Snap A tool for clipping text or graphics from the screen, using the clipboard device. Snap finds out character coordinates automatically, handles different fonts, keymaps, accented characters, and more. Version 1.62, an update to version 1.4 on disk 326. Includes source. Author: Mikael Karlsson

TAPDemo Tumble Axis Processor is a Sculpt utility with several functions, including automatically aligning a path's tumble axes so that an object following that path will always face the direction of travel, and production of an easy to read data list containing the location of each node and the orientation of each of its tumble axes. This is a fully functional version except that it will not function on paths with more than 15 nodes. Binary only. Author: Martin Koistinen

Fred Fish Disk 525

CrcLists Complete CRC check files for disks 401-520 using the brik program. These were made directly from my master disks. Along with the crc lists from disk 401, these lists will allow you to check all of the disks in the library to make sure they are correct and complete. Author: Fred Fish

DumpHarpoon Program that dumps the .DAT data files for the game HARPOON. Author: Mark Kyprianou

MinixDemo Demo version of minix 1.5, an operating system very similar to UNIX. The full version of minix comes with source code for the kernel and most of the utilities. Binary only. Author: Andrew Tanenbaum, et. al.

SIOD A small scheme interpreter (Scheme In One Defun) which can be used for calculations or included as a command interpreter or extension/macro language in other applications. This is version 2.4. Includes source. Author: George Carrette

Fred Fish Disk 526

DataEasy An easy-to-use data base program which includes a phone dialer, speech output, a simple screen editor for making and modifying the database definitions, a screen print function, form letter printing, sorting, searching, and two small sample databases. Version 1.3, an update to version 1.1 on disk 417. Binary only, source available from author. Author: J. Dale Holt

GNUPlot An interactive function and data plotting program which supports a great number of output devices. Includes extensive on-line help. Version 2.0, patch level 2. Includes full source along with diffs and patch program to generate Amiga version. Author: Thomas Williams, Colin Kelley, Carsten Steger, Russell Lang, Dave Kotz, John Campbell

Fred Fish Disk 527

Arq Replaces the standard system requesters with nice animated requesters which you can also attach different sounds to. Works under AmigaDOS 1.3 or 2.0 to give all the normal system requesters a nice new look. Version 1.61, binary only. Author: Martin Laubach, Peter Wloek, and Rene Hexel

Lister Program to display information about files in various types of archives, such as arc, cpio, lharc, tar, zip, and zoo. Version 1.01, an update to FF518. Includes source. Author: Kerry Cianos and Geoffrey Faivre-Malloy

MightyMouse A very small screen blanker, mouse accelerator, mouse blanker, hot key, etc. utility. Version 1.05, binary only. Author: Bob Stouder

PicBase A program that allows the user to organize and manage all IFF images and brushes stored on disk. Displays a miniature monochrome (8 or 16 level) image of each file, with information such as the full pathname, the creation date, file size, image size and depth, display mode, and filenote. The images are displayed four at a time and can be scrolled in realtime, manually or automatically sorted, presented as a slideshow, and more. Version 0.36, shareware, binary only. Author: Mike Berro

SRegExp A runtime library of routines for doing wildcard pattern matching and wildcard path matching. It accepts a slight extension of the AmigaDOS wildcard syntax, including a "not" operator and character sets. This is version 11.1, includes source. Author: Jon Spencer

ToolManager ToolManager is a full featured program to add programs (either WorkBench or CLI) to the tools menu of the 2.x WorkBench. Programs can be added by dragging their icons onto the ToolManager "config" window or the optional ToolManager icon or by editing the config file. Requires Workbench 2.0. This is version 1.4, an update to version 1.3 on disk 476. Includes source. Author: Stefan Becker

Zoo A file archiver, much like "arc" in concept, but different in implementation and user interface details. Version 2.10, an update to FF164. New features include greatly improved compression, preservation of full pathnames by default, and extended multi-screen help. Binary only. Author: Rahul Dhesi, Amiga port by Brian Waters

Fred Fish Disk 528

AmiOmega Amiga port of the Omega game. Omega is similar to hack or rogue, but is much more complex. There is a city, several towns, a wilderness, lots of dungeons, a multitude of monsters, lots of spells, magic items, etc. There are several quests to complete. All in all, it is an excellent game. This is version 1.5, a different port than version 1.0 on disk 320. Binary only. Author: Laurence Brothers, Amiga port by Klavs Pedersen

CpuBlit CpuBlit replaces the system BltBitMap routine with a version that uses your 68020/68030 when it is worthwhile to do so. This results in text scrolling twice as fast as usual, and in addition, the color flicker effect normally present when scrolling multicolor text is removed. Version 1.0, includes source. Author: Eddy Carroll

FontConv Converts MacIntosh Postscript type 1 and type 3 fonts to the IBM Postscript type 1 and type 3 format. Also converts MacIntosh bitmap screen fonts to the Adobe binary format (abf). Version 1.2, binary only. Author: Gary Knight

KeyMenu An alternative to Intuition's method of menu selection via the keyboard. Uses one key to activate the menu for the currently active window, the cursor keys to move through the menu as you choose, and the return key to select the desired menu item or escape key to abort selection. Works with AmigaDOS 2.0 mouse accelerator and has option to blank Intuition's pointer. Version 1.05, an update to version 1.03 on disk 470. Includes assembly source. Author: Ken Lowther

SimSmart A general purpose utility that prints the program source code of almost any language, so that (for example) the keywords are emboldened and underlined, and the comments are italicized. These features are adjustable by the user, to suit individual taste. Tabbing also is adjustable, to harmonize with the nesting depth of a particular program. Output may be either on the printer, the screen, or to another file. SimSmart may easily be extended by the user to deal with extra languages. Version 2.10, shareware, binary only. Author: David Simon

Fred Fish Disk 529

ClockDJ A utility which combines a clock, mouse accelerator, screen blanker, window manipulator, function keys, and macros into a single program, written in assembly language for maximum efficiency. Includes an ARexx port. Version 5.02, an update to version 4.07 on disk 293. Binary only. Author: David Jenkins

MonkeyDemo Demo version of the LucasFilm game "The Secret of Monkey Island". Installable on a hard disk and multitasks as well. Binary only. Author: LucasFilms

TownMaze A program that designs a town-shaped maze like the town "Bard's Tale I" uses. Version 1.2, includes source. Author: Kent Paul Dolan

Fred Fish Disk 530

DeckBrowser A freely redistributable player for unbound CanDo decks. Version 1.5, binary only. Author: INOVAtronics

Dme Version 1.45 of Matt's text editor. Dme is a simple WYSIWYG editor designed for programmers. It is not a WYSIWYG word processor in the traditional sense. Features include arbitrary key mapping, fast scrolling, title-line statistics multiple windows, and ability to iconify windows. Update to version 1.42 on disk number 441, includes source. Author: Matt Dillon

TurboTitle A program created for the purpose of subtitling Japanese animation films and to create a standard Amiga subtitle format. Is perfectly suited for subtitling any foreign film. Version 0.80, an update to version 0.71 on disk 424. Shareware, binary only. Author: Robert Jenks

To Be Continued.....

In Conclusion

To the best of our knowledge, the materials in this library are freely distributable. This means they were either publicly posted and placed in the public domain by their authors, or they have restrictions published in their files to which we have adhered. If you become aware of any violation of the authors' wishes, please contact us by mail.

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And furthermore...

Commodore Equips Student Animators

CBM donated more Amiga computers to support the continued success of some of the world's most talented budding animators at Rowland High School, an inner city, multi-racial school in Rowland Heights, CA.

"We're thrilled to receive this equipment," said Dave Master, founder and teacher of the program, "because of the unequalled animation capabilities of the Amiga." Master was recently awarded as Teacher of the Year in a contest sponsored by IBM and *Technology and Learning magazine*.

It all began in 1977, when Master assigned his art students to make a 20-second animated film using a Super 8 camera. Commodore donated an Amiga in 1989. "Like most people who had not been exposed to the Amiga before, we had no idea how advanced its animation capabilities are. We were doing mostly traditional work until we got our first Amiga. Now, even I'm amazed at the types of animated films my students produce."

Master and the Rowland Unified School District believe their program teaches students much more than computer animation. It improves communication skills, since students must write their ideas and present them verbally before the class. It teaches them the value of teamwork and cooperation, since students often work in groups. The program also facilitates problem solving and teaches industry techniques such as storyboarding, character and set design, filming, sound production, and editing.

JCUMetSat Weather Satellite Receiving System

Developed by the Department of Electrical and Electronic Engineering at James Cook University, the JCUMetSat Receiving system receives, records, and displays lo-res facsimile signals transmitted by the Geostationary Weather Satellites. The signals are received directly from the satellite, avoiding costly landline charges. The hardware consists of a satellite dish and down converter, the JCUMetSat VHF receiver hardware and a Commodore Amiga computer. The down-converter converts the transmitted signal to a signal in the 137-138 MHz frequency range. The signal is then fed into the JCUMetSat receiver, which converts the meteorological satellite signals into an analog facsimile signal. The receiver then digitizes the resulting facsimile signal and sends these to the computer using a standard parallel printer cable.

The Commodore Amiga records and displays these digitized pictures. The pictures can be displayed singularly, or as an animated sequence in black and white or in a false color scheme. All scan lines are recorded for full resolution and a screen can be sent to the printer for a hard copy. Since the Amiga has a convenient television standard (PAL or NTSC) video display, a genlock can synchronize the computer's video to a broadcast studio. It's easy to broadcast the weather satellite pictures directly.

Pictures can be saved to disk and later displayed in an animation picture sequence. The number of pictures in an animation is determined by available memory. For example, 3MB of memory can display around 44 pictures in a sequence. The rate at which pictures are displayed can be varied from about one picture per 4 seconds to 18 pictures per second. Longer sequences can be shown and a much higher speed can be obtained using an Amiga 3000. Maximum animation rates are more than three times faster on a 3000. The sequences can go forward, backward, slower, single step, stop and change from color to black and white, stop and change from black and white to color, and printed under keyboard control. These sequences are useful in showing the movements of fronts, storms, and cyclones. A sequence of globe pictures is very valuable in teaching the movements of weather patterns in geography classes.

The user can also cut and paste the pictures to include the globe and regions of interest. All pictures are stored in the standard Amiga graphics format so they can be viewed, edited, printed, or included in a multimedia presentation using almost any of the Amiga graphic arts programs on the market. The software has been designed to be very user-friendly and simple to operate. On-line help screens are available by simply pressing the help key on the keyboard. A multi-user license is also available for educational institutions. *For further details, contact Professor C.J. Kikkert, Department of Electrical and Computer Engineering, James Cook University of North Queensland, Post Office James Cook University, Queensland, Australia, 4811, Telephone: (077) 814259*

WORLD OF COMMODORE

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Friday, December 6, 10:00 am – 9:00 pm
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Adults $8, Students & Seniors $6 (Admission includes seminars and presentations.)

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For more information, call The Hunter Group at (416) 595-5906 or fax (416) 595-5093.

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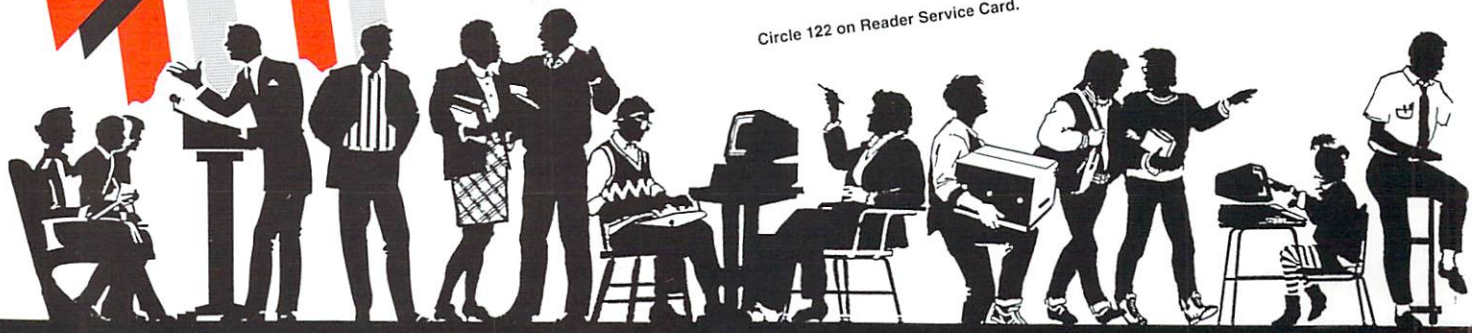

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"[the Video Toaster] Makes the Amiga computer act just like a Hollywood production studio."

-USA Today

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